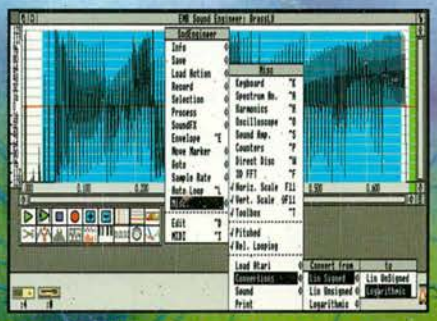
MAY 1993 Vol.11 No.3 £2.95

100% ACORN

Acorn COMPUTING

ALMANAC
An exclusive preview of a powerful new time manager



SOUND ENGINEER
Total control of samples and sounds at your fingertips

THINKSHEET
Compose your thoughts with this effective organiser

IT'S THE WORKS!

First look at Acorn's new generation mini office

FREE
Guaranteed to drive you crazy with 180 levels of breakout mayhem!

FULL PROGRAM WORTH £10

FIREBALL EXTRA II

MAY 1993 ACORN 32-BIT VERSION

Acorn COMPUTING MegaDisk No. 8

FIREBALL II
The complete program plus a screen designer

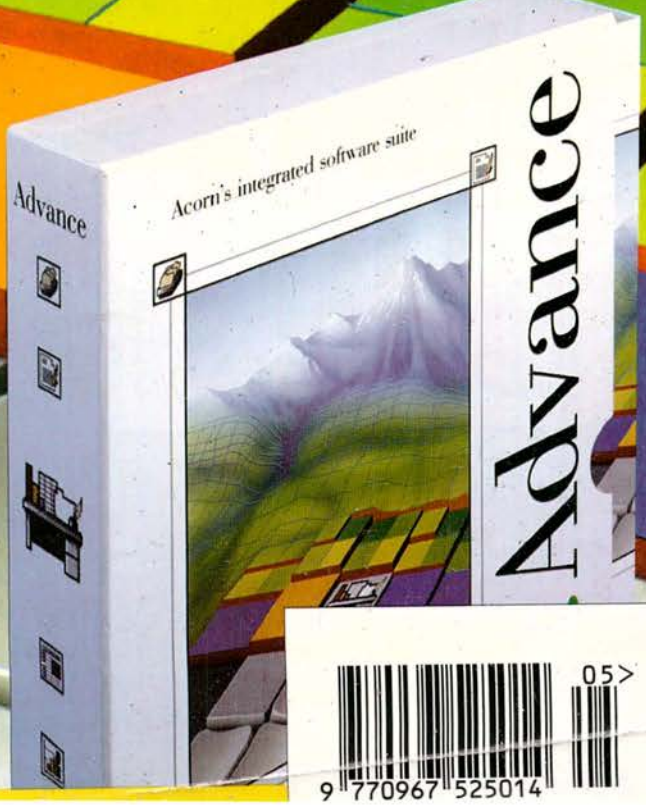
EXCLUSIVE FROM CIS

PASSED CHECKED FOR ALL KNOWN VIRUSES

!SYSTEM Now you can solve your Shared C Library problems

PLUS Packed with utilities, all programs from the magazine and a unique new menu system

No coverdisk? ask your newsagent

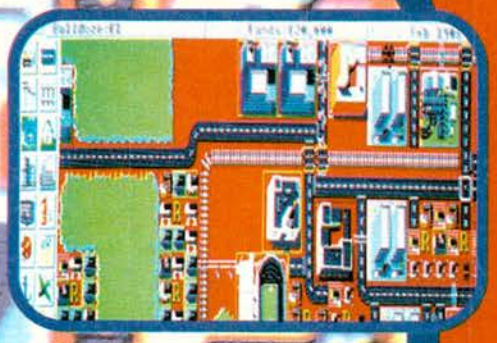


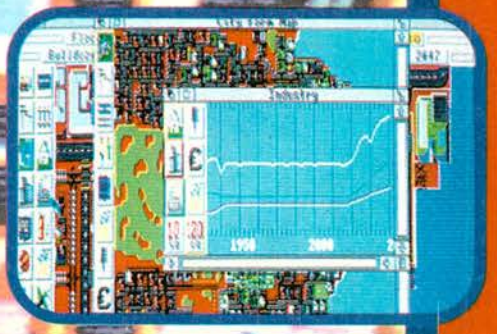
9 770967 525014 05>

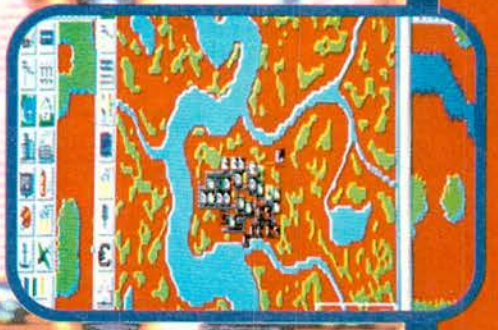
EUROPRESS PUBLICATIONS

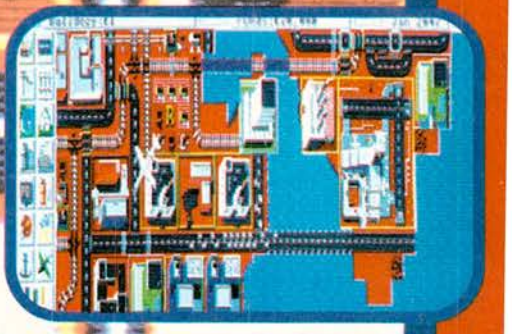
SimCity®
SAN FRANCISCO
CITY
DISASTERS
BUDGET
DATE
1990
ENERGY
POPULATION
RESIDENTIAL
MAXIS
KRISALIS
SOFTWARE LTD.
The City Simulator
KRISALIS SOFTWARE LTD., TEQUE HOUSE, MASONS YARD, DOWNS R

SimCity









- Sold over 300,000 copies worldwide
- Includes maps of famous cities on disk including: Tokyo, San Francisco, Bern, Hamburg, Rio de Janeiro, Detroit and Boston
- Real-time graphics and demo-graphic mapping keep you constantly informed
- Runs in Desk Top and is fully multi-tasking
- Sim City is of great educational value and comes complete with teachers notes

Build your own city from scratch, Bulldoze forests and fields to build roads and zone land for residential, commercial or industrial use. Create industry, power stations, shopping centres, parks, stadiums, seaports and airports. Fight crime, unemployment and pollution. Solve horrendous traffic problems and create rapid transport systems. Control city budgets and population. Confront disasters- floods, earthquakes, fires, tornadoes and nuclear meltdowns, its all in Sim City.

Will you create your own Utopia, or build an industrial nightmare?

HOW TO ORDER

LETTER/FAX
SIMPLY SEND A LETTER GIVING DETAILS OF THE GAME(S) YOU WOULD LIKE, YOUR NAME AND ADDRESS, AND PAYMENT BY CHEQUE, POSTAL ORDER, OR BY GIVING YOUR ACCESS OR VISA CARD DETAILS INCLUDING THE EXPIRY DATE.

IMMEDIATE DESPATCH
ALL ORDERS ARE DISPATCHED BY FIRST CLASS POST IMMEDIATELY. CARRIAGE IS PAID BY US IN THE UK. (ORDERS FROM OVERSEAS ADD £3 PER PRODUCT).

FULLY GUARANTEED
IF FOR ANY REASON DISKS SUPPLIED BY US BECOME FAULTY WE WILL REPLACE THEM STRAIGHT AWAY SIMPLY RETURN THEM TO US ENCLOSING YOUR NAME AND ADDRESS.

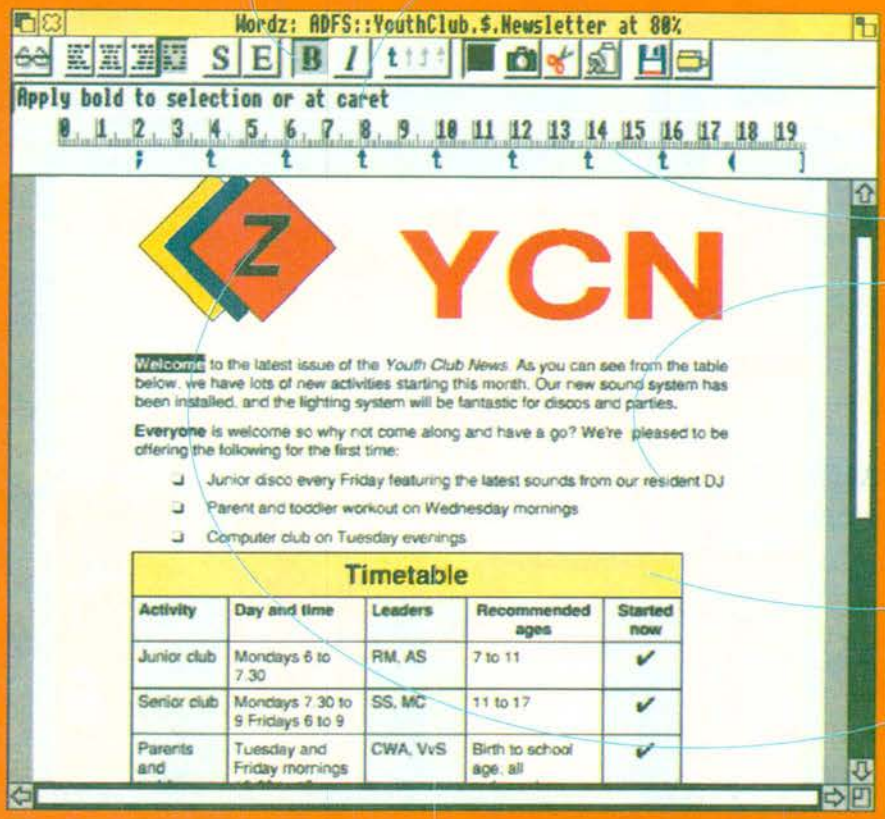
Available for the first time at the
ACORN USER
SPRING SHOW
Harrogate 15th,16th,17th April.

Access VISA

ACORN 32 BI
£34.9

MOORGATE, ROTHERHAM TEL: 0709 372290 FAX: 0709 368403

news from Colton Software


Wordz: ADFS::YouthClub.$.Newsletter at 88%
Apply bold to selection or at caret
YCN
Welcome to the latest issue of the Youth Club News. As you can see from the table below, we have lots of new activities starting this month. Our new sound system has been installed, and the lighting system will be fantastic for discos and parties.
Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:
Junior disco every Friday featuring the latest sounds from our resident DJ
Parent and toddler workout on Wednesday mornings
Computer club on Tuesday evenings
Timetable
Activity | Day and time | Leaders | Recommended ages | Started now
Junior club | Mondays 6 to 7.30 | RM, AS | 7 to 11 | ✔
Senior club | Mondays 7.30 to 9 Fridays 6 to 9 | SS, MC | 11 to 17 | ✔
Parents and | Tuesday and Friday mornings | CWA, VvS | Birth to school age, all | ✔

At last, the word processor the Archimedes has been waiting for. A program that's so easy to use you'll be able to create great-looking documents the first time you use it. The facilities used most are in the *button bar*, and the *status line* gives you instant feedback. Just click and drag in the *ruler* to set margins and tabs; click on a button to cut and paste - it's that easy.

Wordz has all the features you'd expect from a state-of-the-art word processor. The powerful style editor gives you complete control over all aspects of your text; *font, spacing, margins*, and *colour*. Unparalleled control over *tables* including dragging to resize columns and rows. Speedy check-as-you-type or whole document spell checking. Import *pictures* and text from other programs, including PipeDream.

Wordz is the first of a family of programs which share the same easy user interface and include dynamic data linking. The spreadsheet Resultz will be available in mid-1993.

Wordz costs £99+VAT. *"Is it easy to use? It's falling-off-a-log easy to use."*

word"Z"!™ ®©

1993...4...

for a free Wordz brochure, complete and return this coupon

name

address

postcode

COLTON software

2 Signet Court, Swanns Road,

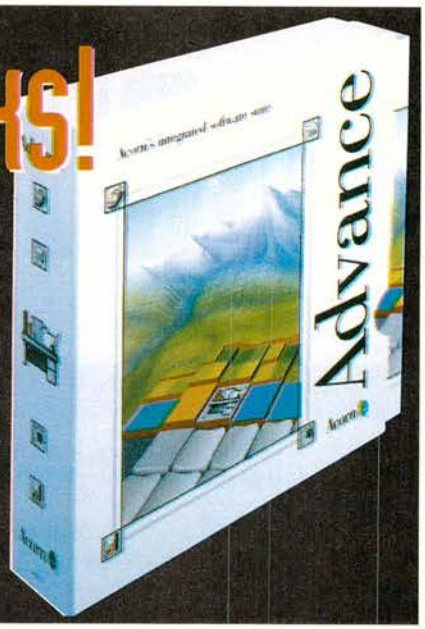
Cambridge CB5 8LA

Telephone 0223 311881

Fax 0223 312010

It's the works!

SINCE the demise of AcornSoft many years ago Acorn themselves have only produced software development tools. But now they've re-entered the commercial fray with an entry-level integrated package combining powerful wordprocessing, database, spreadsheet and charting software. Check it out from Page 60.



Acorn COMPUTING
MegaDisk
No. 8
FIREBALL II
The complete program plus screen designer
EXCLUSIVE FROM CE
!SYSTEM
How you can solve your Shared C Library problems
PLUS
Packed with utilities, all programs from the magazine and a unique new menu system

Britain's best Acorn cover disk contains hours of fun and a host of useful utilities linked to our editorial features to make the magazine come alive on your desktop!

Full details about the software packed MegaDisk - see page 6

REGULARS

Comment	15
News	19
Problem Solved	67
Mad Hatter	70
Public Domain	81
Body Building	101
Letters	112

LEARNING CURVE

Landmarks	33
Noot	34
Pip investigates dinosaurs	36

FEATURES

MegaDisk	6
BBC disk	25
Newcomers	38
Essential paint	64
32-bit beginners	97
CyberDoc	107

REVIEWS

Almanac	31
ThinkSheet	57
ThinkLink	59
Advance	60
Book reviews	73
Games	75

Almanac exclusive

ONLY readers of *Acorn Computing* are privy to the **exclusive preview** of Almanac from Stallion Software.

The first version of this excellent time management product is available at a **special price** only through *Acorn Computing*.

Exclusive preview page 31
Cut-price reader offer page 63

You need never miss that important birthday ever again.

Midi and Music

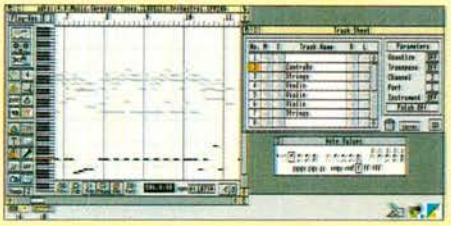
THIS month in *Acorn Computing* we take a look at all the latest music software with nine pages of reviews plus lots more.

Find out what you can use to make cool sounds starting on Page 43.

Leading Edge Music	43
Sound Engineer	47
Digital Symphony	50
Serenade	53

May subscription disks

This month's exclusive *Acorn Computing* subscriber-only disks feature an excellent selection of quality software.



The Archimedes disk contains:

- Serenade demo
- Acorn Computing reviews listing
- All 8-bit listings
- Plus the best of PD software

The BBC Micro disk contains:

- Rabbit Easter game
- Idiot-proofing programs
- Screen fader

SUBSCRIBE NOW – SEE PAGE 17

• The editorial and many of the adverts in this magazine were prepared using Impresssion and ArtWorks by Computer Concepts.

GET YOUR NEWSAGENT TO RESERVE A COPY – SEE PAGE 41

The MegaDisk

EXCLUSIVE SUBSCRIBER DISK

See pages 25 & 26

Fireball II: Breaking in and out

THIS classic game from CIS (071-226 3340) combines 180 levels of Breakout mayhem with a screen editor so you can set ever more ingenious screens for yourself and your friends.

This month's MegaDisk contains the entire game plus the editor. The mission may seem simple – knock out all the bricks on the screen with your bat and ball without using up your three lives and then move on. When you gain 4,000 points you'll be awarded another life. But as you probably realise by now, life is never that simple:

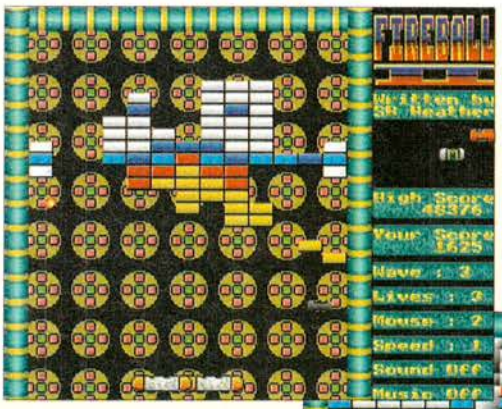
Bricks	Properties
Double-pointed silver	Double hit/reappears
Ridged pink	Invincible/invisible
Ridged green	Invincible/drops bombs
Ridged yellow	Invincible
Ridged silver	Drops bombs
Double-pointed blue	Double hit
Shaded colours	Nothing special

To help and hinder you are a range of capsules which will be released when you hit a brick. Some will let you jump levels, others will give you a snake-like bat, two bats or two balls.

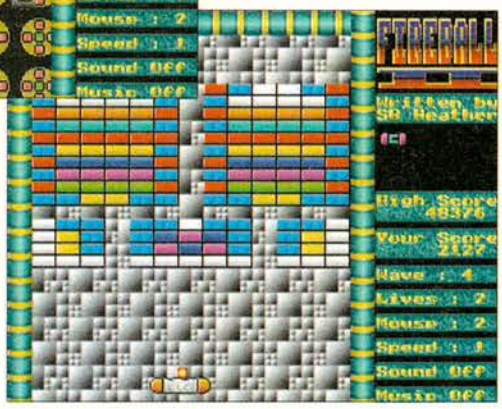
Our favourite is the one that lets you shoot everything in sight. But beware, some reverse your controls and others neutralise your abilities.

To design your own screens or edit some of the original ones, access the Editor from the main screen. On the left, the current screen is shown with the different types of bricks on the right.

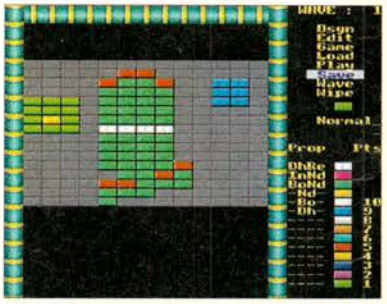
If you want to edit one of the other two provided or start a new one load a screen by clicking Menu



● *Make the most of the beneficial capsules – they don't last forever*



● *Position your bat and ball and add a little keypad help to get on the high score table*



● *Make your own screens as wicked as you want*

FAULTY DISK?

If your cover disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

Stanley Precision
Unit F
Cavendish Courtyard
Sallow Road
Weldon North
Industrial Estate
Corby
Northants NN17 1JX

If there seems to be a fault with one of the programs please contact us by post describing your machine set-up and exactly what happens when you run the program. Software faults should be referred to us here at the magazine.

Getting started

THE programs on this disk are stored in a highly compressed format which sometimes enables as much as 1.6Mb of programs and data to be stored on a 800k floppy disk

The procedure for running the programs is very straightforward and does not require learning any special methods or techniques.

Switch on your Acorn micro, put the disk in the drive and click the drive icon. Now double-click !ACmenu – there's a short pause while it scans the archive then it displays a window of the contents.

You can treat this new window like any other one for viewing disk contents, you can run programs and open directories just by double-clicking them.

Large programs must be unpacked by dragging on to a separate disk before being run.

We recommend that you always read the !ReadMe files or access the help information via the Help button.

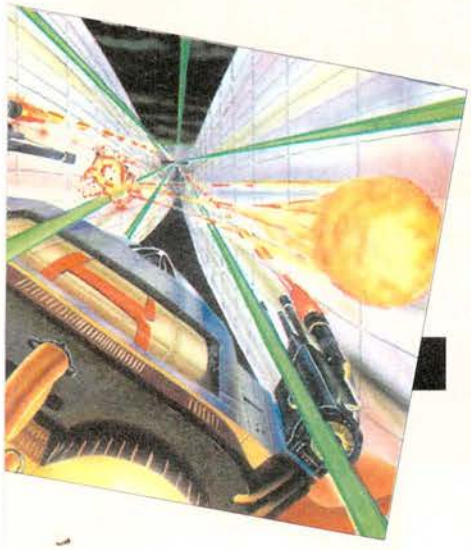
Game controls

You can use the mouse or the keyboard:

Z Move bat left
X Move bat right
C Double speed
V Release ball
B Move ball left
N Move ball right

Pressing some extra keys on the keypad will help, especially on the higher levels:

1 Sets the slowest speed
2 Middle speed – you now score double points for each brick and capsule
3 Highest speed – now you score triple points



above the list of bricks. Select Load and type in the name and start your editing. You save screens in the same way.

If you have changed SCREENS and only want to save the new version type SCREENS – to save both, think of a new name for your edited version. There are other options available to you:

DSGN	Go back to the designer
EDIT	Manipulate the positions of the screens – see *Edit options*
GAME	Return to the main game
LOAD	Load saved screens
PLAY	Test your new screens – with infinite lives too
SAVE	Save your work
WAVE	Select a screen to work on
WIPE	Clears the current screen

To select your bricks just click on the one you want and then on where on the screen you want to place it. Clicking Adjust deletes a brick. The brick you have chosen and its properties are shown on the right.

Edit options

Insert	Adds a blank screen just before the pointer
Delete	Removes a screen
Move	Moves a screen from one position to another and shuffles the screens inbetween
Copy	Copies a screen from one position to another
Exam	Lets you see a specific screen in its true size
Swap	Swaps two screens around
Exit	Takes you back to the screen designer

King Albert: Plenty of patience

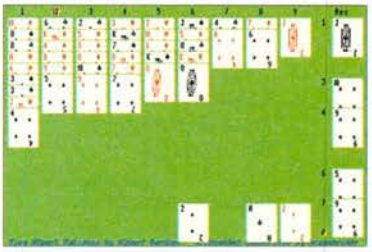
KING Albert Patience is the best single pack version ever invented. The program deals the cards for you face up in nine columns with the remaining seven cards forming the *Belgian reserve* and are placed separately to the right.

To win you must extract the aces as they become available and build each one up in suit to its king. You are only allowed to move one card at a time and only the ones available to be moved are at the bottom of any column, the top of any suit pile or any card in the Belgian reserve.

To win you must try to create empty columns but don't be too keen to put kings into them. Not only can they be used to take a card that's blocking another move but you can also use them to shift sequences from one column to another.

At the start the program asks for a deal number. For a random deal enter 0 or to replay a previous one just enter the same number again.

Albert Gardner & David Shepherdson



Moving cards around

From	Key
Bottom of a column	1 to 9
Belgian reserve	R followed by 1 to 7
Suit pile	P followed by S, H,C or D
To	
Bottom of a column	1 to 9
Suit pile	P
Other options	
S	Restart the same deal
D	Redeal
Q	Quit

PLUS
On this month's MegaDisk

All the 32-bit listings from te magazine:
- CyberDoc
- Body Building
- Beginners plus !System and SysMerge

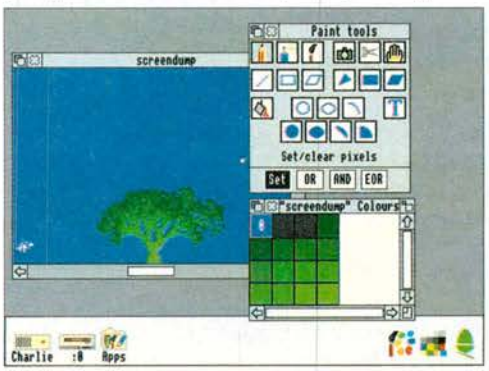
See page 29 for more MegaDisk programs

TreeForm: True-to-life fractal trees

Have you looked in wonder at some of the clever fractal drawings, admired them but puzzled about how they could be used practically? TreeForm uses fractals to draw plants from trees to the common fern.

The default settings produce a very nice looking tree – of infinite variety if you keep pressing the spacebar – which can be altered, saved and incorporated into various other applications.

You run Treeform in the normal way by double-clicking on its icon. The screen clears and the prompt *Enter mutation factor (0-100) : 30* appears. Press Return, and continue doing so until *Enter tree depth (1-15) : 12*. The lower the number, the less detail, but your tree will be drawn quicker.



Once a tree is drawn, you have several options at your disposal:

A	Animates the tree by colour cycling. Exit the animation by pressing Escape
R	Increases the red content
r	Decreases the red content
B	Increases blue
b	Decreases blue
G	Increases green
g	Decreases green
+	Increases the overall brightness
-	Decreases the overall brightness
T	Toggles dark with light
Q	Returns to menu
S	Saves the screen
L	Loads a screen
Spacebar	Redraws the tree with subtle changes

TreeForm is an open invitation to experiment with fractal drawings. For instance, drastic changes can be made to the shape by altering the values in the main menu while altering the colour and lighting changes the *feel* of the tree.

Paul Mason

061 766 8423

Phone lines open :-
Mon - Fri 09.00 - 17.00
Sat 10.00 - 17.00

FAX: 061 766 8425

New Acorn Hardware

Official Acorn Publishing Dealer

A540 4Mb Ram, 120Mb HD	£1995.00
A4 4/60 Mb HD Portable c/w Acorn shoulder bag	£1699.00
A4 2 Mb FD Portable	£1399.00
A5000 / 2Mb Ram, 80Mb HD, Arm 3, Acorn Multiscan Monitor	£1399.00
A5000 / Learning Curve / 2Mb Ram as above c/w software	£1445.96
A5000 / 4Mb Ram, 120Mb HD Arm 3, Acorn Multiscan Monitor	£1599.00
A5000 ES - Econet System Arm 3, Acorn Multiscan Monitor	£1299.00
A5000 NS - Network System Arm 3, Acorn Multiscan Monitor	£1399.00
A4000 Home Office System Arm 250, Acorn Monitor	£999.00
A4000 Home Office Multiscan System Arm 250, Acorn Multiscan Monitor	£1049.00
A4000 HD 80 System Arm 250, Acorn Monitor	£949.00
A4000 HD 80 Multiscan System Arm 250, Acorn Monitor	£999.00
A3010 Family Solution Arm 250, TV Modulator	£424.68
A3010 / 2Mb Learning Curve System Arm 250, Acorn Monitor	£680.00
A3020 / 2Mb FD System Arm 250, Acorn Monitor	£749.00
A3020 / 2Mb FD Multiscan System Arm 250, Acorn Multiscan Monitor	£799.00
A3020 / 2Mb HD 60 System Arm 250, Acorn Monitor	£899.00
A3020 / 2Mb HD 60 Multiscan System Arm 250, Acorn Multiscan Monitor	£949.00

A Finance option is available on the above machines (14.7% APR)

Written details available on request

Acorn Special Needs Centre

We operate the Acorn Teacher and Academic Schemes

Please call for free information packs

A540 Upgrades

4Mb Ram Upgrade	£299.00
Taxan 795 VIDC Modes Disc	£7.50
Technical Reference Manual	£65.00

A5000 Upgrades

2Mb Ram Card	£110.00
Dust Cover (One piece)	£12.95
Technical Reference Manual	£65.00

A3000/10 Upgrades

1 Mb Ram A3010 (2Mb in total)	£39.00
4 Mb Ram A3010	£128.00
A3010 to AKF12/17 adaptor	£9.95
1 Mb Ram (2 Mb in total)	£45.00
4 Mb Ram	£128.00
20 Mb Int Hard Disc (IDE)	£199.00
5.25" External f/disc buffer	£39.00
Joystick (Quickshot III)	£12.00
Joystick Interface	£32.00
Serial Upgrade	£19.00
User & Analogue Podule	£46.00
User & Midi Podule	£46.00

A400 Upgrades

1 Mb Ram	£35.00
2 Mb Ram	£65.00
3 Mb Ram	£99.00
5.25" Ext. floppy disc int.	£39.00

A4 Upgrades

A4 2 MB RAM Upgrade	£110.00
A4 60 MB HD Upgrade	£350.00
A4 Battery Pack	£50.00
A4 Econet Upgrade	£50.00
A4 Shoulder Bag	£35.00
A4 Technical Reference Manual	£65.00

RISC OS 3

RISC OS 2 -> 3.1 Upgrade	£41.70
RISC OS 3 -> 3.1 Upgrade	£16.17
RISC OS 3 Hardware Kit A300	£25.00

Expansion Cards

Econet Module	£46.00
Hawk V9 Video Digitiser	£199.00
I/O Expansion Card	£79.00
Midi Expansion Card	£65.00
SCSI Expansion Card (Acorn)	£229.00
SCSI Expansion Card (Morley)	£149.00

ROMBO Colour Digitisers

A3000 inc. podule housing	£72.30
A400 / A5000	£72.30

Aleph 1

Arm 3 Upgrade	£175.00
386 PC Expansion Card 1Mb	£390.00
386 PC Expansion Card 4Mb	£485.00
486 PC Expansion Card 4Mb	£585.00

Standard Monitors

Acorn Colour	£199.00
Microvitec Cub 3000	£199.00
Philips Mono (Green)	£85.00

All monitors come with free lead. State type of computer when ordering.

Multiscan Monitors

Acorn Multiscan AKF18	£299.00
Taxan 795 Multivision	£449.00

Floppy Disc Drives

5.25" Single 40/80 no psu	£95.00
5.25" Single 40/80 with psu	£109.00
5.25" Dual 40/80 no psu	£185.00
5.25" Dual 40/80 with psu	£199.00
3.5" Single with psu	£85.00
3.5" + 5.25" 40/80 with psu	£209.00

Printers

Canon Bubblejet BJ-10ex	£172.00
Canon BJ10ex inc. turbo driver	£219.00
Sheetfeeder for BJ-10ex	£48.00
Canon BJ200	£299.00
Canon BJC800 (col.) inc. s/w	£1469.00
Citizen 120D+	£114.00
Citizen Swift 9	£169.00
Citizen Swift 240	£239.00
Colour Kit for above	£29.00
Citizen Swift 200	£199.00
Citizen Swift 200 Colour	£225.00
Citizen Swift 128K Memory	£35.00
Integrex Colourjet 132	£519.00
HP Deskjet 500	£299.00
HP DeskJet 550C	£449.00
Laser Direct (LBP4 Hi Res.)	£849.00
Laser Direct (LBP8 Hi Res.)	£1279.00

Econet

Level 4 AUN Software	£399.00

Scanners

Flatbed A4 256 Grey SCSI (CC)	£745.00
Flatbed A4 without SCSI card	£585.00
Scan Junior Scanner 256	£199.00
Scanlight Senior Scanner A4	£289.00
Sheet Feeder for above A4	£135.00

Fax

Fax Pack (CC)	£259.00

FREE

Acorn - 3 Years On Site Warranty on all Acorn Hardware* purchased from Dabhand Computing

*excludes Acorn Purchase Schemes / Education Schemes A4 Portable / Acorn Printer

Printer Drivers

Midnight Graphics

Citizen Swift 9 Sprite Dump	£26.04
Citizen Swift 24 Sprite Dump	£26.04
Epson 24 Sprite Dump	£26.04
HP Deskjet 500C Sprite Dump	£26.04
HP Paintjet Sprite Dump	£26.04
Integrex 132 Sprite Dump	£26.04
Integrex Colourcel Sprite Dump	£26.04
Juki 5520 Sprite Dump	£26.04
Star LC10 Sprite Dump	£26.04
Star XB24 Sprite Dump	£26.04
Star LC200 Sprite Dump	£26.04
Star LC24-200 Sprite Dump	£26.04

Ace Computing

Printer JX (Colour Dot Matrix)	£14.00
Printer DJ (Deskjet 500C)	£14.00
Printer PJ (Paintjet)	£14.00
PRO Drivers (All)	£40.00

Beebug

Deskjet 500/550C Driver	£15.00
Star/Epson/Citizen (Colour)	£15.00

Electronic Font Foundry

BubbleJet - BJ10e/130e	£10.00

Cables

Arc - 15 Pin to 9 Pin Adaptors	£9.95
Arc - Monitor - 8833 inc sound	£8.65
Arc - Monitor - 8833 II inc sound	£8.65
Arc - Parallel Printer Cable	£5.00
Keyboard Extender 400/500	£7.50
Mouse Extender	£7.50

BBC Software

Blob 1	£18.00
Blob 2	£18.00
Chick Chase (80 Track Only)	£15.00
E-Type	£13.00
Master Break	£10.39
Modem Master	£11.26
Play it Again Sam No's 1 - 16 ea.	£11.95
Reversals (80 Track Only)	£20.00
UIM	£14.95
Where's Blob	£18.00

Master Compact

Play It Again Sam No's 1 - 16 ea.	£13.00
UIM	£14.95

Archimedes Software

4 Mation

Chameleon	£35.00
Desktop Basic Editor	£25.00
Jiglet	£25.00
Jigsaw	£27.00
Noot	£50.00
Poster	£75.00
SmArt	£50.00
SmArtFiler	£32.00
Snippet	£35.00
Vector	£75.00

Ace Computing

ArcLight	£40.00
Euclid 2	£40.00
Mogul	£17.00
Splice	£26.00
Tween	£26.00

Acorn Computers

1st Word Plus	£65.00
Desktop Assembler (V 2)	£119.00
Desktop C (V 4)	£180.00
Font Starter Pack	£39.00
Newhall Font Pack	£39.00
PC Emulator / Free Shareware	£95.00
TCP/IP Programers Pack	£50.00
TCP/IP Protocol Suite	£199.00

Arxe Systems

MultiFS	£27.00

Beebug

DeskEdit 2	£25.00
Desktop Thesaurus	£19.00
Hard Disc Companion 2	£45.00
Hearsay II	£69.00
Masterfile 3	£49.00
Ovation	£85.00
Playback	£17.00

Brilliant Computing

Everyday Signs	£20.00
Joystick Games	£20.00
Streetwise	£20.00
Switch On	£20.00
Switch On Actions	£20.00
Teds Adventures	£20.00

Clares Micro Supplies

Artisan 2	£45.00
Fervour	£19.00
Illusionist	£79.00
Interdictor	£10.00
Interdictor II	£23.00
ProArtisan	£70.00
Render Bender 2	£99.00
Rhapsody 2	£45.00
Schema	£90.00

Coin Age

Pesky Muskrats	£14.00

Colton Software

Pipedream 3	£73.00
Pipedream 4	£124.00
Wordz	£88.00

Computer Concepts

AvanteGarde Font Pack	£24.00

ArtWorks	£129.00
Bookman Font Pack	£24.00
Canon BJ10e/x Driver	£42.00
Canon BJC800 Driver	£95.00
Compression	£34.00
Equasor	£37.00
Graphics Card	£249.00
Impression II Borders Disc	£12.00
Impression Business Suppliment	£39.00
Impression II Free Drawfile Disc	£124.00
Impression Junior	£69.00
Inter-Word	£29.00
Show Page	£109.00

Cygnus Software

Iron Lord	£14.00
Tower of Babel	£14.00
Twin World	£14.00

Dabhand Computing

Arc DFS	£22.00

Database Software

Fun School 3 under 5s	£16.95
Fun School 3 5-7 year olds	£16.95
Fun School 3 over 7s	£16.95
Fun School 4 under 5s	£20.00
Fun School 4 5-7 year olds	£20.00
Fun School 4 7-11 year olds	£20.00

Domark

3D Construction Kit	£25.00
Mig29 Super Fulcrum	£29.00
Trivial Pursuit	£22.00

Dyslexia Software

Specialist software for all ages - home / education

Call for details

Empire

Pipemania	£16.00

Electromusic Reasearch

Creations Discs 1-8 ea.	£19.00
MIDI Analyser	£29.00
Microstudio	£78.00
Music Player	£35.00
RhythmBox	£29.00
SoundSynth	£39.00
Studio 24 Plus	£149.00

ESM

Desktop Folio	£79.00

Hybrid

Elite	£31.95

Icon Technology

EasiWriter	£115.00
TechWriter	£195.00

Krisalis Software

Champions Collection - Leader Board / Man. United / Squash / Boxing	£22.00
Chuck Rock	£19.00
Gods	£19.00
Hero Quest	£22.00
James Pond	£19.00
Krisalis Collection - Pipemania / Revelation / Mad Professor Mariarti / Terramex	£22.00
Lemmings	£19.00
Mad Professor Mariarti	£14.00
Manchester United Europe	£19.00
Nebulus	£19.00
Populous	£22.00
Swiv	£19.00
Turbo Challenge 2	£19.00
World Champ. Boxing Manager	£18.00
World Championship Squash	£18.00

Leading Edge

A3010 Joymaster	£24.00
Investigator II	£22.00
Joystick Interface (All Models)	£32.00
Desktop Tracker	£74.00

Lingenuity

CableNews	£149.00
HotLink Presenter	£29.00
Presenter GTi	£69.00

Longman Logotron

ArcComm 2	£49.00
Eureka!	£99.00
First Logo	£23.00
Landmarks Aztec	£19.00
Landmarks Columbus	£19.00
Landmarks Egypt	£19.00
Landmarks Rainforest	£19.00
Landmarks Victorians	£19.00
Landmarks World War II	£19.00
Magpie	£40.00
Notate	£49.00
Numerator	£60.00
Numerator Chaos	£18.00
Pendown Plus	£69.00
Pendown Outline Fonts	£18.00
Pinpoint	£75.00
Pinpoint Junior	£23.00
Revelation 2	£95.00
Revelation ImagePro	£139.00
S-Base Personal	£89.00
S-Base Developer	£169.00
SkyHunter	£22.00

MicroPower

Chess 3D	£14.00
Zelanites	£15.00

Midnight Graphics

ClipArt 1 / Clipart 2 each	£29.95
Express	£51.02
Tracer	£52.13

Minerva Software

Applications

Ancestry	£59.00
Atelier	£69.00
Cadet	£149.00
Desktop Office 2	£79.00
Easiword 2	£54.00
Flexifile	£89.00
Graphbox	£55.00
Graphbox Professional	£105.00
Home/Club Accounts	£34.00
Linkword - French	£35.00
Linkword - German	£35.00
Linkword - Spanish	£35.00
Multistore II	£179.00
PCAccess	£19.00
PrimeArt	£69.00

Leisure

Bughunter in Space	£11.00
Bug Hunter / Moon Dash	£11.00
Casino	£11.00
Caverns	£11.00
Family Favorites	£11.00
Freddy's Folly	£11.00
Hoverbod	£11.00
Ibix the Viking	£11.00
Jet Fighter	£11.00
Maddingly Hall	£11.00
Orion	£11.00
Redshift	£11.00
Talisman	£11.00
Thundermonk	£11.00

Northwest SEMERC *

Conform Keyboard Software	£18.00
Le Monde a Moi	£18.00
Meine Welt	£18.00
My World (Program)	£18.00
My World 2	£28.00
My World - Christmas Disc	£9.00
My World - Design	£9.00
My World - Fuzz Buzz	£12.00
My World - Geog. Key Stage 1	£9.00
My World - I'm Special	£9.00
My World - Nursery Disc	£9.00
My World - Maths	£9.00
My World - Patterns	£9.00
My World - Sampler	£9.00
My World - Skeletons	£9.00
My World - Village/Town	£9.00
Oldham Keyboard	£99.00
Full Phases	£28.00
Phases 3	£18.00
Phases - Borders disc	£9.00
Phases - Christmas disc	£9.00
Phases - Clip Art 1	£9.00
Phases - Very Hungry Caterpillar	£9.00

* Please add £2.50 P&P to SEMERC Software

Oak Solutions

Draw, Print and Plot	£39.00
Genesis II	£99.00
Worra Battle	£10.00
WorraCAD	£74.00

Sherston Software

!Draw Help	£15.95
!Help (RISC OS 2)	£7.95
!Help 3 (RISC OS 3)	£9.95
Animated Alphabet	£19.00
Arcventure I - Romans	£25.00
Arcventure II - Egyptians	£25.00
Badger Trails	£35.00
Dreamtime	£20.00
Farm	£19.00
Fleet Street Phantom	£23.00
Glimpse	£8.50
Mapventure	£23.00
Microbugs	£25.00
Nature Park Adventure	£24.50
Selladore Tales	£24.00
Space Mission Mada	£23.00
Stig of the Dump	£22.00
Story Starts	£25.00
Teachers Cupboard	£24.50
Teddy Bears Picnic	£23.00
Viewpoints	£35.00
Wizards Revenge	£17.00
Worst Witch	£21.50

SIMMIS

Flight Sim Toolkit	£31.00

Superior Software

Air Supremacy	£14.00
Conqueror	£15.00
Hostages	£14.00
Master Break	£14.00
Play it again Sam 1	£19.00
Repton 3	£14.00
Speech!	£14.00
Superior Golf	£14.00
Technodream	£19.00
The Last Ninja	£19.00
Zarch	£14.00

The Data Store

FontFX	£9.95
ShapeFX	£9.95

The Fourth Dimension

Apocalypse	£14.00
Arcticulate	£14.00
Arctist	£14.00
Boogie Buggy	£14.00
Break 147 / Superpool	£25.00
Black Angel	£28.00
Cataclysm	£18.00
Chocks Away 2	£18.00
Chocks Away Extra Missions	£14.00
Chocks Away 2 + Ext. Missions	£27.00
Chopper Force	£22.00
E-Type Compendium	£18.00
Enter The Realm	£18.00
Grievous Bodily 'ARM	£18.00
Holed Out Compendium	£18.00
Nevryon	£14.00
Pandora's Box	£18.00
Powerband	£14.00
Pysanki	£14.00
Saloon Cars - Deluxe	£25.00
The Real McCoy 1	£23.00
The Real McCoy 2	£23.00
The Real McCoy 3	£23.00
The Wimp Game	£14.00
X-Fire	£16.00

Triple R Education

10 out of 10 English	£19.00
10 out of 10 Maths	£19.00
10 out of 10 Early Essentials	£19.00

Books (No VAT)

Archimedes Assembly Language	£14.95
Archimedes Operating System	£14.95

The above books have accompanying discs add £5 for 5.25", £7 for 3.5"

C: A Dabhand Guide 3rd Edition	£16.95
A3000 Technical Guide	£29.95
Assembler Release 2	£25.00
BASIC V: A Dabhand Guide	£9.95
BBC Basic Guide (Acorn)	£19.95
Budget DTP (Draw & Edit)	£12.95
DTP Seeds (4Mation)	£8.45
Desktop C Release 4	£25.00
Desktop Development UG	£25.00
Graphics on the Arm - A DHG	£14.95
First Word Plus - Dabhand Guide	£13.95
as above with disc	£21.90
Impression - Dabhand Guide	£14.95
as above with disc	£16.95
M128 Ref. Man.Pts 1&2 (ea.)	£14.95
Programming in Ansi C	£14.95
RISCOS 3 PRM's	£TBA
Understanding Spreadsheets	£9.95

Hours of Opening

Monday - Friday 9.00 a.m. - 5.00 p.m.
Saturday 10.00 a.m. - 5.00 p.m.
Lunch 1.00 p.m. - 1.30 p.m.

How to find us

Important Facts

- **NO Minimum Order Value**
- **NO Carriage Charges in Mainland UK**
- **ALL Goods Despatched within 24 Hours, subject to stock levels**
- **Acorn Education Dealer**
- **Acorn Qualified Dealer**
- **Acorn Service Centre**
- **Hotline Support on all Hardware and Software purchased from us**

Terms & Conditions

TERMS: EC residents add 17.5% VAT to all prices, except books. Carriage *FREE on all items in the UK (*with the exception of "remote" areas). Foreign orders, carriage at cost. (quotations available). Access/Visa cards accepted. Dabhand Computing Ltd. is a Qualified Acorn Dealer. Official orders accepted from public sector/education/PLCs, otherwise cash with order. Tender invitations welcome. Callers welcome. We are 2 minutes north of J17, M62. Prices subject to change without notification. Goods offered subject to being unsold.

DABHAND COMPUTING

DABHAND COMPUTING LTD
5 Victoria Lane
Whitefield
Manchester, M25 6AL

DABS PRESS

Acorn The choice of experience

0772 623000

Formerly Orion Computers

A3010 from £424

A3010 WITH A FREE DABS BUNDLE: JOYSTICK, 5 ALIEN IMAGES GAMES, 3 DABS PRESS BOOKS OR WITH THE FS A FREE 1MB RAM UPGRADE (TO 2MB)

A3010 Family Solution £424
A3010 Learning Curve £680

A3020 £749

A3020 FD System £749
A3020 HD 60 System £899
These prices include a FREE 2Mb to 4MB Upgrade
A3020 Option: Multiscan monitor included for extra £50

ACORN COMPUTERS

Acorn A4 Accessories

A4 2Mb RAM Upgrade	£110
A4 60Mb HD Upgrade	£350
A4 Battery Pack	£50
A4 Econet Upgrade	£50
A4 Portable Handbook	£7.50
A4 Shoulder Bag	£35
A4 Technical Reference Manual	£65
A4 Welcome Guide	£10

Finance Schemes

We Operate the Acorn Educational, Teachers and Finance Scheme. Call for details

MONITORS

Philips CM8833 MkII	£199
Acorn Colour (AKF30/40)	£220
Microvitec Cub Scan 1440	£399
Taxan MultiVision 795	£460

UPGRADES

Ram

A3000	1 to 2Mb RAM	£45
	1 to 4Mb RAM	£129
A3010	1 to 2Mb RAM	£39
A3020/4000	2 to 4Mb RAM	£85
A5000	2 to 4Mb RAM	£85
A400 Series	RAM	£30 per Mb

RISC OS 3.1 UPGRADES
A5000 £16 Other £40
Rom carrier is required for A305, 310, 440 £20

(Above memory fitted for £10.00 plus courier charge)

Hardware Upgrades

ARM3	from £175
Econet Module	£47
Joystick Interface (Leading Edge)	£34
Joysticks	from £10
Midi Expansion Card	£65
Scanlight Junior 256	£199
Scanlight A4	£289
Vision Digitisers	
A3000/3010/3020/4000/5000	
Mono Internal	£49
Colour Internal	£79
Hi-Colour Internal	£129

ARC/A3000/A4000/A5000 APPLICATIONS

D.T.P.

Impression II (CC) *Latest Version*	£125
Impress. Bus. Supplement (CC)	£39
Desktop Folio (ESM)	£79
Equasor (CC)	£34
Showpage (CC)	£108

WordProcessors

1st Word Plus Rel. 2 (Acorn)	£69
Impression Junior (CC)	£75
PenDown (Longman Logotron)	£46
PenDown Plus (Long. Logo.)	£68
Wordz! (Colton)	£89

Integrated Packages

Pipedream 4 (Colton) New	£178
Desk Top Office II(Minerva)	£79

Databases/Hypertext

Flexifile (Minerva)	£84
Multistore Version II	£154
Genesis II (Oak Solutions)	£109
Knowledge Organiser (Clares)	£41
PinPoint (Long. Logo.)	£79
PinPoint Jnr (Long. Logo)	£23
Magpie (Long. Logo)	£53
Squirrel (Dig Serv)	£120
Archivist Database (Oregan) New	£26

Accounting Software

Home Accounts (Minerva)	£34
Business Accounts (Minerva)	£298

Languages

Desktop C (Acorn)	£185
Desktop Assembler (Acorn)	£125

Education

Fun Sch. 3 Series (Database)	Each	£18
Fun Sch. 4 Series (Database)	Each	£18
Adventure Playground (Stormsoft)		£14
10 out of 10 (Triple R)		
Early Essentials New		£19
English		£19
Maths		£19
10 out of 10 Coming Soon		
French, German, Italian, Maths (Algebra), Science, Spanish		*£TBA*
Christmas Adventure		£19

Spreadsheets

Schema (Clares)	£96
Eureka (Long. Logo.)	£99
Resultz! (Colton)	£TBA

Utilities

Compression (CC)	£39
MultiFS (Arxe)	£26
Hearsay II (Beebug)	£69
ARCTerm7 (Serial Port)	£67
ProDriver (Ace)	£34
Dot Matrix Colour Printer Driver	£15
Turbo Driver + Cable (CC)	£49
HP Deskjet 500C Printer Driver	£15
Desktop Thesaurus	£19

Music

Ancestry (Minerva)	£59
Armadeus (Clares)	£59
Rhapsody II (Clares)	£45
Tracker (Serial Port)	£38
Notate (Long. Logo.)	£51
Scoredraw (Clares)	£44
Digital Symphony (Oregan) New	£40
Rhythm Box (EMR)	£36

Graphics

Artworks (CC) New	£149
Poster + Font (4Mation)	£79
Render Bender II (Clares)	£98
Graphbox Pro. (Minerva)	£104
Pro Artisan (Clares)	£79
Revelations (Long. Logo.)	£66
Revelation II ImagePro(Long. Logo)	£102
Atelier (Minerva)	£69
Chameleon (4Mation)	£33
SmArt (4Mation)	£50
SmArt Filer (4Mation)	£32
Snippet (4Mation) V.2	£37
Vector (4Mation)	£79
ARCLight (Ace)	£46
Euclid (Ace)	£64
Mogul (Ace)	£24
Splice (Ace)	£32
Tween (Ace) *Version 2*	£42
Illusionist (Clares)	£78
Titler (Clares)	£120
PrimeArt (Minerva)	£59
Type Studio (Beebug)	£38
Font FX (Data Store)	£9
Shape FX (Data Store)	£9

Misc

PC-Emulator *Latest Version* (Acorn)	£93
Investigator II (Leading Edge)	£22
ARCticulate (4th Dimension)	£18

BOOKS/MANUALS

Program. Ref. Manuals	£77.00
Arc. Games Makers Man.	£14.95
BASIC VI Guide - BBC	£19.45
A3000 Technical Guide	£28.95
Acorn D.T.P. Manual	£10.00
Acorn Desktop C	£25.00
Acorn Desktop Assembler	£25.00
First Impressions + Disc	£29.95
Good Impressions + Disc	£26.95

There is NO VAT (0%) on all books.

RIBBONS AND PRINTER CARTRIDGES

Branded Ribbons

Amstrad DMP2000/3160	£5
Citizen 120D	£5
Citizen Swift 24 Black	£5
Citizen Swift 24 Colour	£11
Epson LX80/86	£4
Epson FX80,MX80,LX800	£5
Epson LQ400,550 fabric	£6
Epson MX100,FX1000,FX1050	£6
Epson EX800/1000 Black	£7
Panasonic KXP145, KXP115	£6
Panasonic KXP140	£10
Star LC10	£4
Star LC10 4 Colour	£6
Star LC200 Black	£6
Star LC200 Colour	£11
Star LC24/10 / LC24 200 Black	£8
Star LC24 200 Colour	£11

Printer Cartridges

Canon LBP4 Toner Cartridge	£55
Canon LBP8 Toner Cartridge	£62
Canon BJ130 (BJI481)	£10
Canon BJ10e/10ex (BC01)	£15
Canon BJ300/330 (BJI642)	£10
C'jet 132/Canon PJ1080 Black	£10
C'jet 132/Canon PJ1080 Colour	£12
HP Paintjet Black	£18
HP Paintjet Colour	£20
HP Deskjet Black High Capacity	£18
HP Deskjet 500C Colour	£20
Qume Crystal Print Toner Set	£58
Qume Crystal Print Drum Set	£88

Compatible Ribbons

Amstrad DMP2000	£3
Amstrad LQ3500, PCW8256	£3
Brother M2024	£5
Brother M1009,M1109	£4
Brother HR10,15,20,25,35 Fabric	£4
Brother HR10,15,20,25,35 MS	£4
Canon PW1080A	£4
Citizen 120D/Swift 24	£3
Epson LX80,86	£3
Epson FX80,MX80,LX800,LX850	£3
Epson FX1050,LX1000	£4
Epson LQ500, LQ800,LQ850	£4
Epson LQ1000,LQ1050,FX1000	£6
Epson LQ2500,LQ2550	£6
Epson EX800	£6
Panasonic KXP1081/90,1180/24	£4
Seikosha GP100	£3
Shanwa CP80 Multistrike	£5
Star LC10/LC20	£3
Star LC10 4 Colour	£5
Star LC24/10, LC24/200	£4
Star LC200 Black	£3

Discounts available on all ribbons for quantities of 3 or more.

Please call for prices on ribbons not listed here. We supply almost any ribbon required and, dependent on quantity, any colour. Please Note - Quoting the CARMA Group Code speeds up our search for a ribbon compatible with your printer.

A5000 from £1249 EX VAT

A5000 2Mb HD80 System £1399
A5000 Learning Curve £1445
A5000 4Mb 120 System £1599
SPECIAL OFFER A5000 2Mb 120HD £1249
Includes A5000, Connor 120Mb Hard Drive, AKF40 Colour Monitor or add £50 for Acorn Multiscan Monitor. add £85 2Mb to 4Mb Upgrade

POCKET BOOK

Pocket Book £212
256k RAM 16 bit processor
Upto 4Mb SSD storage
SPECIAL FREE OFFER
4 Batteries & Recharger

Cumana World of CD-ROM £595

Call for details

PRINTERS

Canon (Inkjet Printers)

BJ10EX	£162	BJ10EX ASF	£42
BJ10EX Batt	£42	BJ10EX Turbo	£220
BJ300	£299	BJ330	£359
BJ200	£274	BJC 800	£1285
Turbo Driver & Lead for BJC800			£89

Citizen (2 year warranty)

120D+ Parall	£94	Swift 9 Colour	£144
Swift 200	£152	Swift 200 Col	£175
Swift 240	£199	Swift 240 Col	£211
Projet	£309	PN48	£189

Epson (new models)

LX400	£92	LQ-570	£205

Hewlett Packard

Paintjet	£499	DeskJet 500	£269
DJ 500 Col.	£339	DJ 550 Col.	£429

Panasonic

KX-P1170	£100	KX-P2123	£149
KX-P1123	£129	KX-P2123Col	£185
KX-P2180	£129	KX-P2624	£268
KX-P2180Col	£144		

Star

LC20	£102	LC24/20	£148
LC100 Col	£129	LC24/100	£149
LC200 Col	£155	LC24/200	£162
SJ48	£164	LC24/200 Col	£219
LC15	£185	LC24/15	£255

Other Star prices please Call

LASERS

Qume 300dpi	£866
600DPI Laser Direct Card (CC)	£326
Canon LBP4 lite	£478
Canon LBP4 + 1Mb - 4ppm	£629
HP LaserJet 4 (600 dpi)	£1027

We will quote on many lasers not listed

PLEASE NOTE

*All our printers are UK Models and **NOT** grey imports. Please take this into account when deciding where to purchase your printer.*

FREE ARC CABLE WITH ALL PRINTERS

Please Call For Any Printers not Listed.

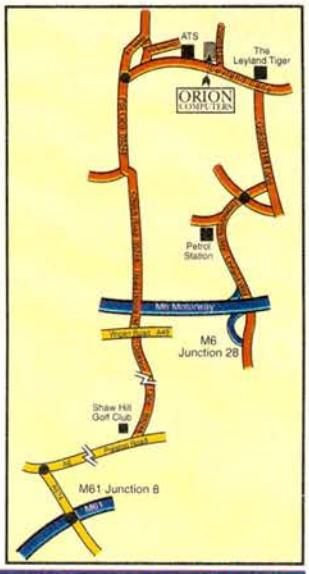
Dabs Press - Acorn | Dabs Press - Acorn | Dabs Press - Acorn

A4000 £949 EX VAT

A4000 HD80 SYSTEM £949
A4000 HOME OFFICE £999
Option: Multiscan monitor add £80
FREE 2Mb to 4Mb Upgrade

A4 portable £1399

A4 2MB FD SYSTEM £1399
A4 4MB HD80 SYSTEM £1699
FREE WITH AN A4 A Spare Battery & Shoulder Bag



ARC/A3000A4000/A5000 GAMES

2067BC (Oregan)	£17	Hero Quest (Krisalis)	£24
3D Construction Set (Domark)	£35	Holed Out Compendium (4th Dime.)	£20
Air Supremacy (Superior Soft)	£17	Iron Lord (Cygnus)	£14
Alderbaran (Arc Angels)	£28	Ixion (Software 42)	£18
Alerion (Alien Images)	£11	James Pond (Krisalis)	£19
Aliped (Alien Images)	£11	Last Ninja (Superior)	£19
Alien Invasion (Alien Images)	£11	Legend of the Lost Temple (Eterna)	£19
All-In Boxing (Alien Images)	£11	Lemmings (Krisalis)	£19
Arcendium (Alien Images)	£11	Lotus Turbo Challenge II (Krisalis)	£19
ARCtist (4th Dimension)	£19	Manchester Utd. Europe (Krisalis)	£19
Ballarena (Eterna)	£14	Microdrive II World Edition (C.I.S.)	£24
Black Angel (4th Dimension)	£26	Nebulus (Krisalis)	£19
Blaston (Eterna)	£15	Nevryon (4th Dimension)	£15
Break 147/Superpool (4th Dime.)	£26	Oh No, More Lemmings (Krisalis)	£16
Cartoon Line (Eterna)	£18	Omar Shariff's Bridge (Krisalis)	£22
Cataclysm (4th Dimension)	£20	Pandora's Box (4th Dimension)	£20
Chequered Flag (C.I.S.)	£18	Pesky Muskrats (Coinage)	£19
Chess 3D (Micropower)	£14	Play it Again Sam 1 (Superior)	£20
Chocks Away Version II (4th Dim.)	£20	Poizone (Eterna)	£14
Chocks Away Extra Missions (4th D)	£15	Populous (Krisalis)	£22
Chocks Away Compendium (4th D)	£26	Powerband V. II (4th Dimension)	£20
Chopper Force (4th Dimension)	£23	Quest For Gold (Krisalis)	£19
Chuck Rock (Krisalis)	£19	Saloon Cars Deluxe (4th Dime.)	£28
Colony Rescue (Alien Images)	£11	Saloon Cars Extra Courses (4th D)	£16
Cyber Chess (4th Dimension)	£39	SimCity (Superior)	£24
Cyberg (Alpine)	£19	Speech (Superior software)	£14
DreadNoughts (Turcan)	£25	Spheres of Chaos (Matt Black)	£18
Dreadnoughts - Bismarks (Turcan)	£14	Starch (Alien Images)	£11
Dreadnoughts - Ironclads (Turcan)	£14	SWIV (Krisalis)	£19
Dungeon (4th Dimension)	£26	The Real McCoy 1, 2 (4th Dim) each	£23
Ego Repton 4 (Superior)	£17	The Real McCoy 3 (4th Dim)	£23
Elite (Gold Edition) (Hybrid)	£32	Twin World (Cygnus)	£14
Enter the Realm (4th Dimension)	£20	Waterloo (Turcan)	£19
E-Type Compendium (4th Dime.)	£20	Wolf Pack (Software 42)	£TBA
Fervour (Clares)	£18	World Champ. Boxing Manager (Kris)	£18
Fine Racer (Eterna)	£14	X-Fire (4th Dimension)	£20
Galactic Dan (4th Dimension)	£20	Zelanites (Micropower)	£14
Gods (Krisalis)	£19		
Gribbly's Day Out (Coin Age)	£19		
Grievous Bodily 'ARM (4th Dime.)	£20		
Guile (Dream)	£22		

NEW GAMES IN RED
COMING SOON IN YELLOW
Please ring for current prices on software **NOT** *listed here.*

BUY ANY 3 GAMES GET 1 ALIEN IMAGES GAME FREE

CABLES

9 pin to Scart + Audio 1.2m	£8
9 pin to Philips 8833 Mk11 1.2m	£8
Arc Keyboard Extention Cable 2m	£7
Arc Mouse Extention Cable 2m	£7
Arc Keyboard Replacement Cable	£7
Arc Mouse Replacement Cable	£7
4 way trailing socket	£5

Please specify machine when ordering

BULK DISKETTES

All our disks come complete with labels etc. and are 100% certified error free. In the event that a disk fails it will be replaced immediately.

DISK TYPE		10	100	250
TDK DS/DD 3½"	each	50p	47p	45p
TDK DS/HD 3½"	each	85p	80p	75p
DS/DD 3½"	each	50p	40p	35p
DS/HD 3½"	each	75p	65p	55p
DS/DD 96tpi 5¼"	each	30p	20p	18p

ALL PRICES ARE EXCLUDING V.A.T. & CARRIAGE *(Where Applicable)*
FREE CARRIAGE ON ALL SOFTWARE

Please note that carriage is now charged on all products except software.

Software	FREE
Consumables/Small Hardware	£3.00
Large Items ie. Comps., Printers, etc	£7.00
Next working day (Any item)	£12.00
Saturday delivery	£30.00
N. Ireland, C.I., I.of M., Highlands	£20.00

ORDERING INFORMATION

Please send your orders including a signed cheque, postal order or credit card number & start/expiry date (NOT CASH) to:

Dabs Press,
Department 1 2 3
250 Leyland Lane, Leyland,
Preston. PR5 3HL.

Please make all cheques and bankers drafts payable to Dabs Press.
Please don't forget to add the VAT & Carriage

Telephone orders may be placed between 9.00am and 5.00pm. Please have your credit card number and both start and expiry date ready.

Tel:0772 623000
Fax: 0772 622917
Open Mon-Fri: 9am - 5pm.
Sat: 10am - 1pm.

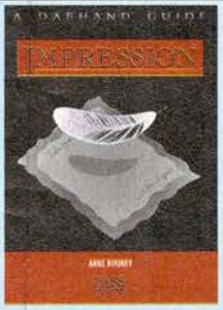
TERMS: Add 17.5% VAT to all prices, except books, for all UK/EEC orders. UK carriage charged at appropriate rate. Overseas carriage charged at cost. Quotations available. Access, Visa, Switch, AMEX accepted. All prices are subject to change without notification. Goods available subject to being unsold. Official orders accepted from public sector, education, Plc's, Tender invitations welcome. E & O.E.

© Dabs Press. (11.2.93)

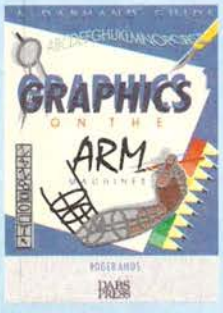
Dabs Press - Acorn | Dabs Press - Acorn | Dabs Press - Acorn

DABS PRESS PUBLISHING

Tel. 0772 623000
Fax. 0772 622917



A guide to this powerful document processor which explains how to produce anything from a business card to a full length book.
Price £14.95 or £16.95 with disc.



A journey through all aspects of graphics on the Acorn machines. This book unravels the large variety of programs available for all illustrative and graphic work, scanning and picture manipulation. Extensive colour plate section. Price £14.95

ACORN/ARC. SOFTWARE

Instigator Utility system providing disc sector editor, memory editor, disassembler, command line archiving, and much more. Price £49.95

Arc PC Emulator Shareware Similar to Master 512 Shareware but for the Arc PC Emulator. Two collections of five discs each. URRP £34.95. Now on special offer, both collections for £25.

ACORN/ARC. BOOKS

Archimedes Assembly Language The only tutorial and reference on ARM assembler on the market, with many RISC OS examples.
Price £14.95 or £21.95 with disc.

Archimedes First Steps Introductory book for the Arc, covering the basic operations and use of !Edit, !Draw, etc.
Price £9.95

Archimedes Operating System Useful summary of OS information with detailed examples.
Price £14.95 or £21.95 with disc.

Basic V A practical guide to programming in BASIC V on the Acorn Archimedes, with a wealth of easy-to-follow examples.
Price £9.95

Budget DTP The book that will save you money. Takes you step by step through all aspects of DTP on the Archimedes.
Price £12.95

BBC SOFTWARE

Hyperdriver The ultimate printer driver ROM, with over 80 commands, a built-in NLQ character set, WYSIWIG previewing, access from View, Wordwise, Interword or BASIC. 100 page manual. For B/B+/E/M/C. Price £29.95 ROM, £24.95 disc for SRAM.

Minidriver As HyperDriver but for Mini Office II. Includes Viewdata terminal. Price £24.95 ROM. SRAM version £19.95.

Mos Plus Utility ROM for Master 128s only fixing EDIT and CLOSE#0 bugs, ADFS format, verify and backup in ROM, backup/compacting in SRAM, alarm clock and configurable startup facility and much more. Price £12.95 ROM, £7.95 SRAM

Sidewriter Pop-up notepad for SRAM users (any SRAM machine), works with any software. Price £7.95

Fingerprint SRAM or main memory 6502 machine code monitor/ disassembler/memory editor. For B/B+/E/M/C/
Price £9.95.

Conversion Kit Ready-made 6502 assembler routines, for learning or development. Price £7.95

BBC BOOKS

View Dabhand Guide Bruce Smith's comprehensive guide to View word-processor. "For those who want a complete thorough and readable guide to View." (Beebug).
£12.95 or £17.95 with disc.

Master Operating System David Atherton's definitive reference work including the famous 'differences between all eight-bit models' section used by countless programmers to ensure compatibility across the full eight-bit range. £12.95 or £17.95 with disc.

Mini Office II Guide Detailed tutorial by Bruce Smith and Robin Burton for the BBC/Master versions of the software. Price £9.95 or £14.95 with disc.

Mastering Interpreters and Compilers
Fascinating Bruce Smith title on creating high level languages. £14.95 with free disc.

MASTER 512

Master 512 Shareware Collections Two collections of PC shareware, all tried and tested on the 512. Includes WP's, spreadsheets, databases, games etc. Five full 800k discs in each. Each collection normally £29.95, special offer £25 for both.

Master 512 User Guide Full instruction for using the 512 and DOS Plus, with tips on soft-ware compatibility. £9.95 or £14.95 with disc

Master 512 Technical Guide The companion guide with full 512 programming information and hardware expansion projects. Price £14.95 or £19.95 with disc.

OTHER DABS BOOKS

Z88: A Dabhand Guide Introduction to the Z88, by the designers of the machines own software. £14.95

Z88 Pipedream Guide John Allen's detailed work on all aspects of Z88 PipeDream. Good explanations of printing. Price £14.95

Psion LZ OPL Guide Ian Sinclair's guide to OPL programming on the LZ series of Organiser machines Price £12.95

NEW Getting the Most from The Amstrad NC100 Notepad Computer Ian Sinclair's guide to this popular new notepad computer, packed with hints and tips on how to get round problems, tackle awkward jobs etc. Makes you realise that you cannot get full potential from this machine in 5 minutes!!

Ordering Information
Please send name, address quantity, product required & cheque made payable to

DABS PRESS

or Access/Visa No. with start date & expiry date to:
Dabs Press Publishing
FREEPOST (PR1327)
Leyland, Preston
PR5 3BR

Free Carriage on all books and software from Dabs Press Publishing.

A step-by-step guide that takes you through all the features of 1st Word Plus on the Archimedes. Price £13.95 or £21.90 for book and disc.

The 3rd edition of this acclaimed popular account of the C programming language, is the most detailed yet. Packed with useful programs and written in a clear in efficient way, this edition of the C book boasts even more information than before.
Price £16.95

ICS

051-625 1006

SOFTWARE

APRIL 1993

10 out of 10 Early Essentials	Triple R	£19
10 out of 10 English	Triple R	£19
10 out of 10 Maths (Number)	Triple R	£19
1st Paint	Resource	£34
1st Word Plus	Acorn	£63
– extra copy of manual	Acorn	V0 £10
3D Construction Kit (not OS 3.1)	Domark	£35
A3000 Technical Reference Manual	Acorn	V0 £30
A4 Technical Reference Manual	Acorn	V0 £65
A5000 Technical Reference Manual	Acorn	V0 £65
A540 Technical Manual	Acorn	V0 £65
ABC Version 3	Oak	£79
Acheton / Kingdom of Hamil	Topologika	£17
Accounts	ACS	£245
Acorn Advance	Acorn	**£95**
– Primary Licence		£190
– Secondary Licence		£475
Adventure Playground, age 5-8	Storm	£21
Aggressor	Atomic	£15
Air Supremacy	Superior	£17
Aldebaran	ArcAngels	£26
Alerion	Dabs	£12
Alien Invasion	Dabs	£12
All-In Boxing	Dabs	£12
AlphaBase	Clares	£37
ALPS Adventure Language Programming System	Alpine	£28
Amazing Ollie, age 4+	Storm	£14
Ancestry	Minerva	£59
ANSI C Release 4 User Guide	Acorn	V0 £25
Arcade 3	Clares	£13
ArcComm 2	Longman	£47
ArcDFS	Dabs	£22
ArcFAX	David Pilling	£19
Arcendium	Dabs	£12
Archimedes Assembly Language	Dabs	V0 £15
– with disc		£22
Archimedes First Steps	Dabs	V0 £10
Archimedes Game Maker's Manual	Sigma	V0 £15
Archimedes Operating System	Dabs	V0 £15
– with disc		£22
Architech	ExpLAN	£165
Archway 2	Simtron	£78
ArcLight	Ace	£45
ArcMonitor	CIS	£21
Arcol Desktop	ExpLAN	£49
Arcounts Manager	Visionscan	£295
ARC-PCB	Silicon	£99
– Professional	Silicon	£234
– Schematics	Silicon	£319
ArcSpell 1	Xavier	£29
ArcSpell 2	Xavier	£29
Arcterm 7	Serial Port	£59
ARCticulate	Fourth Dim	£19
ARCtist	Fourth Dim	£19
ArcTrivia	Moray	£21
Arcventure I ... The Romans, age 10-12	Sherston	£27
Arcventure II ... The Egyptians, age 8-9	Sherston	£27
Armadeus	Clares	£59
Armadeus Sampler Board	Clares	£129
Artisan 2	Clares	£43
Art Machine Pack 1	Topologika	£39
Art Machine Pack 2	Topologika	£39
ArtWorks	CC	**£129**
– network licence		£655
– site licence		£545
Astro	Topologika	£35
Atelier	Minerva	£69
AUN/Level 4 Fileserver	Acorn	£395
Avon & Murdac	Topologika	£16
Badger Trails, age 9-11	Sherston	£32
Bambuzle (not OS 3)	Arxe	£16
BASIC V	Dabs	V0 £10
Basic Wimp Programming	Dabs	V0 £POA
Battlechess	Krisalis	£24
Battletank	Minerva	£9
BBC Basic Guide	Acorn	V0 £21
Beginner's Guide to Wimp Programming on the Archimedes	Sigma	V0 £13
Birthday Present	Topologika	£POA
Black Angel	Fourth Dim	£26
Blitz	Arxe	£17
BlowPipe	Leading Edge	£14
Bobby Blockhead vs The Dark Planet	Atomic	£15
Bookstore, age 7-16	ESM	£37
Break 147 & Superpool	Fourth Dim	£25
Britain by Rail	Fisher-Marriott	£19
Budget DTP	Dabs	V0 £13
Bug Hunter / MoonDash	Minerva	£10
Bug Hunter in Space	Minerva	£10
Business Accounts	Minerva	£298
C (new edition)	Dabs	V0 £16
– with disc		£24
CableNews	Lingenuity	£136
CADet	Minerva	£135
Cambridge Pascal	Oak	£79
Cartoon Collection	Micro Studio	£16
Casino	Minerva	£11
Castle of Dreams, age 9+	Storm	£22
Cataclysm	Fourth Dim	£18
Caverns	Minerva	£10
C Development System	RISC	£77
Chameleon (new version)	4mation	£33
Champions Compilation	Krisalis	£24
Charts & Graphs	Computer Tutorial	£17
ChartWell	RISC	£25
Chatter	4mation	£34
Chequered Flag	CIS	£18
– Extra Circuits	CIS	£16
Chess 3D	Micro Power	£21
Children's Graphics	Micro Studio	£16
Chocks Away Compendium	Fourth Dim	£27
Chopper Force	Fourth Dim	£22
Christmas Adventure, age 5-8	Storm	£19
Christmas Allsorts	Sherston	£15
Chuck Rock	Krisalis	£19
Clip Art	Graphics Factory	
– Vol 1 (General), sprites		£19
– Vol 2 (General) / Vol 3 (Animals) / Vol 4 (Sport) / Vol 5 (Characters)	each	£25
Clip Art Set 1, drawfiles	Midnight	£28
Clip Art Set 2, drawfiles	Midnight	£28
CNC Designer V3 for Lathe	TechSoft	£343
CNC Designer V3 for Lathe and Miller	TechSoft	£493
CNC Designer V3 for Miller	TechSoft	£343
Coffee, age 9+	Storm	£28
Colour Screen»Mac	Human	£90
– Arc/Mac Cable	Human	£24
ColourSep	ICS	**£15**
– site licence		£45
ColourSep Starter Packs	ICS	
– DeskJet 500 (Mono)		£55
– site licence		£85
– BJ-10 with Cartridges		£85
– site licence		£115
– BJ without Cartridges		£40
– site licence		£70
Compression	CC	£34
Computer Basics	Computer Tutorial	£17
Concept Designer	Longman	£23
Control Logo	Longman	£25
Converta-Key	Triple R	£9
Cops	Alpine	£15
Countdown to Doom / Return to Doom / Philosopher's Quest	Topologika	£25
Craftshop 1	4mation	£19
Craftshop 2	4mation	£19
Creator	Alpine	£31
Crisis	CIS	£15
Cross-32 Meta-Assembler	Baildon	£125
– manual for evaluation	Baildon	V0 £15
Crystal Rain Forest, age 8-11	Sherston	£37
Curves	Topologika	£37
Cyber Chess	Fourth Dim	**£29**
Cyborg	Alpine	£19
DataGraph	Topologika	£29
Datapower	Iota	£145
DataVision	Silicon	£79
DataWord	Triple R	£15
DBEdit	4mation	£28
Decorated Alphabet, sprites	Micro Studio	£17
Designer V3	TechSoft	£193
Designer Intro (not OS 3)	TechSoft	£75
Designer's Graphics, draw/sprites	Micro Studio	£16
DeskEdit2	RISC	£27
Desktop Assembler Release 2	Acorn	£119
Desktop C Release 4	Acorn	**£180**
Desktop Database	Iota	£52
Desktop Folio	ESM	£60
– Themes: Christmas, Editors, Maths, Space, World War II	each	£22
Desktop Office v2	Minerva	£95
Desktop Publishing on the Archimedes	Sigma	V0 £13
Desktop Thesaurus	RISC	£18
Detect-a-Pet, age 5-11	ESM	£49
DFS Reader	RISC	£9
DrawBender	ICS	**£10**
– site licence		£30
!Draw_Help	Sherston	V0 £16
Draw Print & Plot	Oak	£35
Dreamwave	EMR	£34
Droom	Resource	£24
Dust	Resource	£29
DTP Graphics 1 Mono, sprites	Micro Studio	£15
DTP Graphics 2 Colour	Micro Studio	£17
DTP Graphics combined	Micro Studio	£25
DTP Seeds	4mation	V0 £8
DTP Theme Packs, age 5-16	ESM	
– Christmas		£35
– Editor's, Maths	each	£29
Dungeon	Fourth Dim	£26
Easiword Plus	Minerva	£54
EasiWriter 2	Icon	£115
– Dictionaries: Danish / Dutch / French / German / Italian / Norwegian / Spanish / Swedish / Swiss German /Welsh	each	£30
Ego: Repton 4	Superior	**£18**
Einstein	Ace	£106
Elite	Hybrid	£32
EluciData (OCR)	Irlam	£155
– bought with Irlam Scanner		£79
Enter the Realm	Fourth Dim	£18
Equasor	CC	£37
Ethnic Borders	4mation	£10
E-Type Compendium	Fourth Dim	£18
Euclid	Ace	£55
Eureka	Longman	**£99**
ExcellonDrill	Silicon	£63
Express	Midnight	£45
Eye for Spelling	ESM	£32
Family Favourites (not OS 3)	Minerva	£11
Farmer Giles	Computer Tutorial	£16
Farmer Giles II	Computer Tutorial	£17
Fervour	Clares	£19
Film-Maker	Silicon	£63
Fireball II Xtra	CIS	£9
First Impression	Word Processing	V0 £28
First Logo	Longman	£24
First Words and Pictures	Chalksoft	£21
Flare	Silica	£22
Flexifile	Minerva	£84
Flight Path, age 9+	Storm	£27
Flight Sim Toolkit	Simis	£31
Fontasy	ICS	**£15**
– site licence		£45
Fontasy / DrawBender / Placard	ICS	£30
– site licence		£80
FontFX	Data Store	£9
– site licence		£70
Font Pack – Newhall, Starter, Symbol – each pack	Acorn	£35
Font Pack 1 – Paladin, Swiss B, Symbol B, Vogue	RISC	£47
Font Pack – Avant Garde, Bookman Pembroke – each pack	CC	£24
Food for Thought	Sherston	£15
Freddy's Folly (not OS 3)	Minerva	£8
Freddy Teddy	Topologika	£18
– Balloons & The Zoo	Topologika	£27
– The Playground	Topologika	£27
– The Puddle & The Wardrobe	Topologika	£27
Freddy Teddy's Adventure	Topologika	£18
Fun School 2	Europress	
– age -6, age 6-8, age 8+	each	£17
Fun School 3	Europress	
– age -5, age 5-7, age 8+	each	£18
Fun School 4	Europress	
– age -5, age 5-7, age 7-11	each	£18
Galactic Dan	Fourth Dim	£19
Gammaplot	Minerva	£36
Gate Array Design System	Silicon	£114
Genesis II	Oak	£99
Genesis Plus	Oak	£68
Genesis Script Language	Oak	V0 £15
GenIndex	Oak	£39
GerberPlot	Silicon	£63
Giant Killer, age 10+	Topologika	£29
Giant Killer Support Disc	Topologika	£24
Glimpse	Sherston	£10
Gods	Krisalis	£19
Good Impression	Word Processing	V0 £25
Granny's Garden	4mation	£23
Granny's Garden Resource Pack	4mation	£15
GraphBox	Minerva	£57
GraphBox Professional	Minerva	£104
Graphics on the ARM Machines	Dabs	V0 £15
Graph_IT	Sherston	£19
Greetings Graphics, draw/sprites	Micro Studio	£16
Gribbly's Day Out	Coin-Age	£19
GridIT	Widgit	£30
Grievous Bodily 'ARM	Fourth Dim	£18
Guile	Dream	£24
Hard Disc Companion	RISC	£45
Hearsay II	RISC	£69
HelixBasic	PDK	£79
!Help 3	Sherston	V0 £11
Hero Quest	Krisalis	**£24**
Hilighter, age 7-16+	Sherston	£42
History Costume, sprites	Micro Studio	£16
Holed Out Compendium	Fourth Dim	£18
Home Accounts	Minerva	£34
HotLink Presenter	Lingenuity	**£19**
House of Numbers	Chalksoft	£20
Hoverbod (not OS 3)	Minerva	£11
Ibix the Viking (not OS 3)	Minerva	£11
I²C SWI	Baildon	£15
– bought with Oddule		£5
Illusionist	Clares	£69
Illustrators' Graphics, draw/sprites	Micro Studio	£16
Image Animator	Iota	£68
Image OCR	Iota	£POA
Image Outliner	Iota	£72
Imagery	Palette Studio	£70
Imagine (Version 2)	Topologika	£44
Impact!	Circle	£47
Impact! Demo	Circle	£2
Impression	CC	£123
– network version		£650
– site licence		£545
– extra hardware key for sites only		£15
– extra manual for sites only		V0 £8
Impression	Dabs	V0 £14
– with disc		£17
Impression Borders	CC	£19
Impression Business Supplement	CC	£39
Impression Junior	CC	£69
– site licence		£435
– extra manual for sites only		V0 £7
Insight	Longman	£68
Instigator	Dabs	£39
Interdictor 2	Clares	£26
Investigator 2 (not OS 3)	Leading Edge	£21
IronLord	UBI Soft	£14
Isle of Wight	Computer Tutorial	£20
Ixion	Software 42	£21
James Pond	Krisalis	£19
Jet Fighter	Minerva	£10
Jiglet	4mation	£19
Jigsaw	4mation	£19
Junior Database	Iota	£45
Junior PinPoint	Longman	£23
Karma	Periscope	£20
Keyboard Player	Chalksoft	£17
Keylink Prolog	Keylink	£69
KiddiCad	Oak	£59
Kid Pix	ESM	£35
Knowledge Organiser 2	Clares	£84
Krisalis Collection	Krisalis	£21
Landmarks – Aztecs, Civil War, Columbus, Egypt, Elizabeth I, Rain Forest, Second World War / Victorians – each	Longman	£18
Last Days of Doom / Hezarin	Topologika	£17
Last Ninja	Superior	£19
Lemmings	Krisalis	£19
Letters and Pictures	Chalksoft	£20
Lexicon Dictionary – French, German – each	Stallion	£19
Lexicon Dictionary – Russian	Stallion	£24
Lexicon – French, German –each	Stallion	£39
Lexicon – Russian	Stallion	£44
Linkword – French, German, Spanish – each	Minerva	£37
Little Red Riding Hood, age 5-8	Selective	£14
Logo	Longman	£55
LogoPlotter	Longman	£20
Lotus Turbo Challenge 2	Krisalis	£19
Mad Professor Mariarti	Krisalis	£14
Magpie	Longman	£40
Mah-Jong European – The Game	CIS	£19
Mah-Jong Patience	CIS	£19
Mailshot	Minerva	£27
Manchester United Europe	Krisalis	£19
Maps and Landscapes 1	Chalksoft	£19
Maps and Landscapes 2	Chalksoft	£19
Mark Master	Chalksoft	£67
Master Break	Superior	£14
Masterfile (Version 3)	RISC	£46
Maths Sieve	Computer Tutorial	£16
Mazes, drawfiles	Micro Studio	£16
Memory Magic	CIS	£12
Mental Maths	CIS	£16
MicroDrive 2	CIS	£25
MicroDrive Designer	CIS	£25
Micro Music	Fisher-Marriott	£19
MicroSpell 3.XX	David Pilling	£5
Micro Trader Accounts	PRES	£270
MiG-29 Superfulcrum	Domark	£29
Military History, sprites	Micro Studio	£16
Minotaur	Minerva	£8
Missile Control	Minerva	£8
Mogul	Ace	£21
Money Matters	Triple R	£15

Movaword	Chalksoft	£17
MultiFS	Arxe	£27
Multistore version II	Minerva	£154
Myth of Moby Dick	Toppologika	£27
Nature Graphics, draw/sprites	Micro Studio	£16
Naughty Stories (set of 6)	Sherston	£48
Navigator	Topologika	£39
Nebulus	Krisalis	£19
Newton	Longman	£20
Night Sky	Clares	£67
Nominal Ledger	Minerva	£78
Noot	4mation	£41
Noot Art Disc	4mation	£10
Notate	Longman	£42
Note Invaders	Chalksoft	£20
Number 62 Honeypot Lane	Resource	£29
Numbers and Pictures	Chalksoft	£20
Numberscope	Fisher-Marriott	£19
Number Zoo, age 3-6	Selective	£14
Numerator	Longman	£39
Numerator Chaos	Longman	£18
Oak Logic	Oak	£79
Oak PCB	Oak	£79
Oh No! More Lemmings (requires Lemmings)	Krisalis	£15
Ollie Octopus' Sketchpad, age 4+	Storm	£14
Omar Sharif's Bridge	Krisalis	£22
Order Processing/Invoicing	Minerva	£78
Orion	Minerva	£8
Orrery	Spacetech	£93
Ovation	RISC	£85
Overload	Clares	£13
Padlock	ICS	£10
– site licence		£30
Pandora's Box	Fourth Dim	£18
Pappus	Computer Tutorial	£17
Paradroid 2000	Coin-Age	£22
PC Access	Minerva	£19
PC Emulator 1.6	Acorn	£89
PDT	Oak	£149
Pendown	Longman	£46
Pendown Etoiles	Longman	£49
Pendown Outline Fonts	Longman	£19
Pendown Plus	Longman	£68
Personal Accounts	Apricote	£29
Perspectives	TechSoft	£44
Pesky Muskrats	Coin-Age	£19
Phonic Games	Fisher-Marriott	£28
Picture Book	Triple R	£15
Picture It!	Appian	£29
– Topic discs	each	£9
PinPoint	Longman	£65
– site licence		£390
PipeDream 3	Colton	£72
PipeDream 4	Colton	**£119**
PipeDriver Dot 1	ICS	£10
Pipe Mania	Empire	£18
Pirate, age 8-14	Chalksoft	£19
Placard	ICS	£10
– site licence		£30
Plague Planet	Alpine	£13
PlayBack	RISC	£19
Play It Again Sam 1	Superior	£20
Plot	Clares	£POA
Podd	ESM	£25
Polyominoes	Topologika	£29
Populous	Krisalis	£22
Poster	4mation	£75
PowerROUTER	Silicon	£159
Prehistoric Animals, sprites	Micro Studio	£16
Premier	Circle	£71
– DataBase	Circle	£25
– WordProc	Circle	£25
Presentation Task Force		£POA
Presenter GTi	Lingenuity	£66
PrimeArt	Minerva	£69
PrimeMover	Minerva	£POA
PrimeWord	Minerva	£54
Printer Drivers, RISC OS:		
BJ-10ex / BJ-200 TurboDriver + Cable	CC	£42
BJC-800 TurboDriver + Cable	CC	£89
Canon BubbleJet, Canon LBP, Canon PJ1080, ColourCel, Epson JX, Epson ESC-P2, HP, Integrex 132 – each	Ace	£19
Deskjet 500C, Epson / Star colour – each	RISC	£15
ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet – each	Ace	£37
ProArtisan	Clares	£71
ProArtisan 2	Clares	£POA
ProCAD	Minerva	£394
Programming in ANSI Standard C on the Archimedes	Sigma	V0 £15
Prophet (requires 2 Mb)	Apricote	£132
Prophet Demo	Apricote	£10
Protext	Arnor	£117
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£16
Puncman 3 and 4	Chalksoft	£16
Puncman 5 to 7	Chalksoft	£18
Punctuate	Xavier	£31
Punctuate!	Topologika	£25
Purchase Ledger	Minerva	£78
Quest for Gold	Krisalis	£19
QuicKey	ICS	£10
– site licence		£30
Real McCoy 2	Fourth Dim	£25
Real McCoy 3	Fourth Dim	£25
Real McCoy 4	Fourth Dim	£25
Recall, age 8-13	Sherston	£39
Redshift	Minerva	£10
Render Bender 2	Clares	£78
Reporter	Minerva	£29
Repton 3	Superior	£14
Resultz	Colton	£POA
Revelation 1	Longman	£39
Revelation 2	Longman	£75
Revelation 2 CD Rom	Longman	£98
Revelation ImagePro	Longman	£127
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£45
Rhapsody 3	Clares	**£79**
Rhythm-Bed	Clares	£39
RiscBASIC Compiler	Silicon	£79
RiscForth Compiler	Silicon	£79
Risc OS Companion Vol 1	Oak	V0 £49
Risc OS Extras 1992	Acorn	£9
Risc OS Programmer's Reference Manual	Acorn	V0 £79
Risc OS Style Guide	Acorn	V0 £11
RoboLogo	Silicon	£39
Round the World Yacht Race, age 9+	Storm	£27
Sales Ledger	Minerva	£78
Saloon Cars Deluxe	Fourth Dim	£25
– Deluxe Extra Courses	Fourth Dim	£16
S-Base Developer	Longman	£175
S-Base Developer Plus	Longman	£275
S-Base Personal	Longman	**£95**
Schema	Clares	£95
Schema 2	Clares	£POA
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£44
Scorewriter	EMR	
– PMS Dot matrix, Version 1		£127
– PMS Dot matrix, Version 2		£147
– PMS PostScript		£422
ScreenPlay	Widgit	£35
ScreenTurtle	Topologika	£44
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Serenade	Clares	**£109**
Sesame Street	Electric Crayon	
– Letters for You		£16
– Numbers Count		£16
ShapeFX	Data Store	£10
ShareHolder	Silicon	£106
ShareHolder Professional	Silicon	£234
Shylock Gnomes, age 10-15	Selective	£16
Sim City	Krisalis	£24
SkyHunter	Longman	£22
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *Please specify English, French, German, Spanish or Welsh – each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
Smudge the Spaniel, age 4-8	Storm	£20
Snippet (new version)	4mation	£32
Soapbox	Xavier	£34
SolidCAD	Silicon	£79
SolidsRender	Silicon	£79
SolidTools	Silicon	£234
Sound Engineer	EMR	£69
Sound FX Maker	CIS	£31
Spark	David Pilling	£5
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£14
Spelling week-by-week	Chalksoft	£21
Spex	ExpLAN	£98
Spheres of Chaos	Matt Black	£19
Splash, age 7-11	Sherston	£19
Splice	Ace	£29
Split an Image	Sherston	£15
Spoken Word	Wyddfa	£16
Spooler	Computer Tutorial	£9
Sporting Triangles	CDS	£19
SportsDay	Selective	£22
SportsPeople	Selective	£22
SpriteEd	Computer Tutorial	£17
SpySnatcher	Topologika	£12
Square Route	Computer Eyes	£16
Starspell Plus	Fisher-Marriott	£19
StartWrite	Icon	£55
Stock Management	Minerva	£78
StockPack	Topologika	£37
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
SUMthing	Resource	£19
SuperDump	Silicon	£20
Superior Golf	Superior	£14
SuperPlot	Silicon	£20
Supersounds	CIS	£15
Supersounds 2	CIS	£15
Swiv	Krisalis	£19
System Delta Plus II	Minerva	£50
– Reference Guide	Minerva	V0 £25
TABS	ExpLAN	£95
Talisman	Minerva	£8
Talking Pictures	Wyddfa	£16
Target Maths	Triple R	£15
Technodream (Wavryon 2)	Superior	£20
TechWriter	Icon	**£159**
Thinklink	Xavier	£29
ThinkSheet	Fisher-Marriott	£38
Thundermonk	Minerva	£11
Tiles	Brain Games	£16
Timeshare	Fisher-Marriott	£19
Timetabler	Minerva	£549
Time Traveller	ESM	
– Britain Since the 1930s		£27
– The Victorians		£POA
TinyLogo/Draw	Topologika	£34
TinyPuzzle	Topologika	£24
Titler	Clares	£119
Toolkit Plus	Clares	£36
Tools Graphics, drawfiles	Micro Studio	£23
Top Banana	Hex	£19
Topographer	Clares	£67
Touch Type	Iota	£39
Tower of Babel	Cygnus	£17
Trace	David Pilling	£5
Tracer	Midnight	£46
Tracker	Leading Edge	£37
Transport, drawfiles	Micro Studio	£25
Turbo Type	CIS	£20
Tween	Ace	£28
Twin	Acorn	£24
Twin World	UBI Soft	£14
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£39
Utility Disc 1	Data Store	£8
Utility Disc 2	Data Store	£13
Utility Disc 3	Data Store	£7
Utility Collection	Data Store	£21
Vector	4mation	£75
View'n'Mac 3	Human	£65
– Arc/Mac Cable	Human	£24
Viewpoints, age 7-12	Sherston	£37
Vox Box	Clares	£46
Waterloo (not OS 3.1)	Turcan	£19
Whale Facts	Topologika	£34
WindowEd	Armen	£27
Word Bank	Topologika	£25
Words and Pictures	Chalksoft	£18
WordWorks	CC	£38
Wordz	Colton	**£89**
World Geography Maps, draw	Micro Studio	£23
World Map Study, age 7-16	ESM	£42
Worldscape	Leading Edge	£17
World Wildlife, sprites	Micro Studio	£16
Worra Battle	Oak	£15
WorraCAD	Oak	£79
Yacht 2	Computer Tutorial	£49
Yacht 7	Computer Tutorial	£94
Zarch	Superior	£14
Zelanites (not OS 3)	Micro Power	£15

HARDWARE

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting easy ‡ Fitting needs expertise

A3000 2 Mb Upgradable †	Atomwide/IFEL	£45
A3000 4 Mb †	Atomwide/IFEL	£110
A3010 1-2 Mb		**£39**
A310 2 Mb Upgradable soldered ‡	IFEL	£88
– as above + MEMC1a		£124
– as above + MEMC1a + fitting		£154
A310 4 Mb soldered + MEMC1a ‡	IFEL	£180
– as above + fitting		£210
A5000 2-4 Mb Non-upgradable †	Atomwide	£85
A5000 2-4 Mb Upgradable †	Atomwide	£99
A5000 2-8 Mb including fitting	Atomwide	£500

ICS

051-625 1006

A5000 4-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Atomwide	£POA

COMPUTERS . . .

A3010 1MB FD Family Solution	Acorn	£420
Family Solution + ideA		

Special price when you buy an A3010 with an ICS internal hard disc upgrade:

– Family Solution + 20 Mb hard disc	£599
– Family Solution + 60 Mb hard disc	£675
– Family Solution + 80 Mb hard disc	£715
– Family Solution + 120 Mb hard disc	£799

A3010 2MB FD Learning Curve with Monitor	Acorn	£675
– as above + JP150 Printer		£889
A3020 2MB FD	Acorn	£749
A3020 2MB HD60	Acorn	£899
A4 2MB FD	Acorn	£1395
A4 4MB HD60	Acorn	£1695
A4 4MB HD80	Acorn	**£1699**
A4 4MB HD120	Acorn	£1799
A4 Extra Battery Pack	Acorn	£50
A4 Shoulder Bag	Acorn	£35
A4000 2MB HD80	Acorn	£945
– as above + Home Office		£995
A5000 2MB HD80 Multiscan	Acorn	£1395
– as above + Learning Curve		£1455
Pocket Book	Acorn	£212

MISCELLANEOUS. . .

386 PC Expansion Card 25 MHz	Aleph One	
– 1 Mb		£374
– 4 Mb		£468
486 PC Expansion Card	Aleph One	
– 1 Mb		£463
– 4 Mb		£557
4-slot 4-layer Backplane	IFEL	£57
9060S Monitor	Eizo	£450
A300/400 Fan kit	ICS	£15
A3000 Expansion Box	Wild Vision	£135
A310 RISC OS Carrier Board ‡	IFEL	£21
A5000 Fitting Kit for second hard disc	ICS	£15
Arckey Function KeyStrip Holder	ICS	V0 £3
– pack of 4		V0 £10
ArcNET	ACS	£69
ARM3 ‡	Aleph One/IFEL	£175
ColourCard	CC	**£225**
– A3000 External	CC	£225
Dongle Dangle with screw fittings	ICS	£6
Fan filters (pack of 10) (not A5000)	ICS	£6
FaxPack	CC	£289
Floppy Discs, 10 × 3½" High Density		£10
G8 Plus	State	£238
G8 Plus Video Switch	State	£23
G8 Professional	State	£348
HiPoint Mouse for A4	Genius	£49
Micro Mouse	Clares	£26
Monitor Stand for A3000	ICS	£21
Podule Case for A3000	HCCS	£16
RISC OS 3 Upgrade	Acorn	£41
– Bulk package	Acorn	£335
– A5000	Acorn	£17
Seal 'n Type spill-proof Keyboard Covers		
– Archimedes / A5000	Kador	£14
– A3000	Kador	£14
TouchWindow	Lindis	£234
Whisper Fan Quietener (for A300/A400 series only)	ICS	£15
Wizzo IDE Filing System on rom	ICS	
– Wizzo4 for A4		£29
– Wizzo5 for A5000		£29

I²C PRODUCTS . . .

AnDi Oddule	Baildon	£39
I²C Adaptor (needed unless you already have an I²C socket)	Baildon	£10
I²C SWI (enhanced IIC_Control)	Baildon	£15
– bought with Oddule		£5

For ordering details please turn to page 3

ICS

051-625 1006

PRINTERS . . .

ArcLaser 300-6	Calligraph	£895
ArcServer 300-8	Calligraph	£985
Bubble Jet BJ-10ex	Canon	£187
Bubble Jet BJ-10ex + TurboDriver	Canon/CC	£219
Bubble Jet BJ-20	Canon	£255
Bubble Jet BJ-200	Canon	£282
Bubble Jet BJ-300	Canon	£325
Bubble Jet BJ-330	Canon	£405
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1499
DeskJet 500	Hewlett-Packard	£299
DeskJet 500C	Hewlett-Packard	£375
DeskJet 550	Hewlett-Packard	£475
Laser Direct HiRes4 with 50-sheet tray	CC	£899
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8	CC	£1275
Laser Direct LBP-4 Card	CC	£325
LBP-4	Canon	£659
Refill toner cartridge for Canon EPS		£50
New toner cartridge for Canon LBP-4		£59

SCANNERS, DIGITISERS . . .

ArcScanner including Epson GT-4000	Clares	£1660
Colour Converter	Lindis	£145
FaxScan	Spacetech	£94
Handipad	TechSoft	£173
Hawk V9	Wild Vision	£199
– A3000 version	Wild Vision	£278
Hawk V9 MkII	Wild Vision	£259
HiVision Digitiser Colour	HCCS	
– A3000 External		£137
– A3000 Series / A4000 Internal		£124
– A5000 / 300 / 400		£124
– Upgrade from Vision		£45
iMage (Sharp JX-100)	Irlam	
– for A5000		£490
– for other computers		£589
Image Scanner	Iota	£383
– Colour Upgrade Kit	Iota	£239
– Fast Parallel Card	Iota	£98
i-Scan 200	Irlam	£539
i-Scan 400	Irlam	£589
Pineapple Colour Video Digitiser	Pineapple	£195
– A3000 boxed	Pineapple	£230
ProImage (Epson GT6000)	Irlam	
– for A5000		£989
– for other computers		£1089
Scan-Light A4	CC	£277
– with Sheet Feeder	CC	£360
Scan-Light 256	CC	£190
– A3000 internal	CC	£190
Scan-Light Professional	CC	£565
– as above + SCSI interface	CC	£699
SnapShot Colour Video Digitiser	Lingenuity	£195
– A3000 version	Lingenuity	£275
Spectra	RISC	
– Archimedes / A5000		£545
– A3000 Series / A4000 Internal		£545
– A3000 External		£555
Vision Digitiser	HCCS	
– A5000 / 300 / 400 Mono		£48
– A5000 / 300 / 400 Colour		£76
– A3000 External Mono		£60
– A3000 External Colour		£89
– A3000 Series /A4000 Internal Mono		£48
– A3000 Series / A4000 Internal Colour		£76

SEE US AT THE ACORN USER SHOW Stand 1

"You wonder how you ever managed without QuicKey."
NOW ONLY £10

"Congratulations on ColourSep! The results, compared with the drivers currently available, are bordering on the fantastic."
NOW ONLY £15

"TWO is the best thing I've ever bought."
NOW ONLY £10

As well as letting you type all those extra characters, Special is the easiest way to examine new fonts.

"DrawBender is quite stunning."
NOW ONLY £10

Padlock is our top seller for simple disc security.

"Fontasy offers a wider range of effects than FontFX. It is a package for the perfectionist, whether professional or enthusiast."
NOW ONLY £15

HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

Official orders are welcome from UK government and educational institutions. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences are available for most products. Please check our prices.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

AUTHORISED ACORN DEALER

ICS (Ian Copestake Limited)

Dept AC8, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

E&OE D61 93MR19

LICENSED CREDIT BROKER

Desktop style and easy programming

AS you might imagine *Acorn Computing* receives a large amount of software for review, from all manner of companies and individuals. The quality of the software varies enormously but does it matter?

Let's say you want to buy a food processor. What do you do? You go to a shop and look at the boxes, compare the features and prices and select one that does what you want at a price you can afford.

It's the same with a wordprocessor. Except that normally you read a magazine, look at the adverts and reviews then choose the one that matches your needs and pocket.

But is it really the same? It is very unlikely that you would get the opportunity to try out a food processor before you bought it. But, at least theoretically, you can go and try out a wordprocessor.

If you're buying a food processor you would have a very good idea of what you want it to do: Cut different types of food into smaller pieces and combine ingredients in certain ways.

What about a wordprocessor? There's no problem if you have a clear idea of the tasks the software must fulfil: Just write letters and technical documents, create leaflets or compile books. But the majority of buyers don't know what they need.

One of the cruellest tricks Acorn ever played on the unsuspecting public was bundling 1st Word Plus in the Learning Curve pack. Now I know many people have been happy with it but distributing a product that didn't conform to its *own standards* was bad and no doubt adversely affected people's opinion of Acorn and their machines.

But why? Because of the learning curve.

On the old BBC Micro, and just about any other popular computer except the Apple Mac, programmers invented their own user interface. So when a user bought a product he had to learn how to operate the program before getting down to using it – every product had a long learning curve.

What Apple did first was to insist that all programs conformed to strict guidelines about those things that all programs do, for example save and print, while many also have cut, copy and paste. Apple insisted that all these operations where available from two menus that always appeared in the same place and used the same quick key presses.

This meant that the new user would always know how to save, print, cut, copy and paste without having to look it up in the manual. And programmers had to conform to many lower level operations to ensure compatibility and similarity of operation.

It doesn't take a genius to figure out that this is a really good idea. But when Acorn tried it with the Risc OS machines they ran into a problem: These computers are too easy to program.

Anybody can write a program on an Acorn machine – it may not be multitasking and may not have cute pop-up menus, it might just print *Hello World* but you can do it.

With Apple Macs and PCs you have to write programs either in machine code directly – which takes a stout heart – or a language which is compiled into machine code, like C or Pascal.

The end product of the extreme versatility of Risc OS machines is that programmers who aren't aware of the need for conformity of style are able to write programs, and even market them commercially.

What happens when programs appear that don't conform to style? If the program is a minor one it probably doesn't matter, it will be ignored and pass into obscurity. But when someone comes up with a really good idea but doesn't do it right, the problems start.

The cohesion of the Desktop begins to fail, users get annoyed at programs that don't work the same as others and the image of the machine is corrupted.

Acorn Computing has an important part to play in this: We review products so that you can see what's available. But what do we review? Our policy is to cover the better products because there's no point wasting space on bad ones.

We hope to encourage good programming and eliminate the bad so that everyone – you, software producers and Acorn – can benefit from a better Desktop.

Steve Turnbull explores the problems of non-conforming software and magazine reviews

Editor Steve Turnbull **Art Editor** Julian Marshall **News and Reviews Editor** Pam Turnbull **Technical Editor** Mike Cook **Chief Sub Editor** Alan McLachlan
Staff Writer Keith Martin **Assistant Advertising Manager** Emma Barr **Advertising Executive** Freddie Wasem **Advertising Production** Antony Allen, Andrew Southam
Director of Advertising John Snowden **Circulation Manager** David Wren

Tel: 0625 878888 (All depts.) 051-357 2961 (Subs.) Fax: 0625 879966
Published by: Europress Publications Limited, Europa House, Adlington Park, Macclesfield SK10 4NP.

europress PUBLICATIONS

Chairman Derek Meakin
Publishing Director Robin Wilkinson
Financial Director Tim Roberts

Acorn Computing welcomes new program listings and articles for publication. All material should be supplied on disc and printed. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

Acorn Computing is an independent publication and neither the BBC nor Acorn Computers Ltd are responsible for any of the articles in this issue or for any of the opinions expressed.

ABC Member Audit Bureau of Circulation

© 1993 Europress Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles, listings or advertisements.

News Trade Distribution: Comag 0895 444055

Printed in the UK by BPCC Magazines (Carlisle) Ltd

NOW YOU CAN AFFORD THE BEST

DISC PARTITIONS

MULTI-LEVEL PASSWORD PROTECTION

RISC OS 3 COMPATIBILITY

2 Mb/sec

2 Mb/sec speed barrier broken by ICS IDE filing system!

So fast, they're calling it

WIZZO *(it's magic)*

Now also available as a plug-in filing system on rom –

WIZZO4 for the A4, and

WIZZO5 for the A5000

LAUNCH PRICE ONLY £29

PRICE CUTS

on all ideA hard discs

e.g. Archimedes Internal 120 Mb £299
A3000 Series Internal 80 Mb £325
A3000 Series Internal 20 Mb £189
A3000 Series Internal 209 Mb £649
540 Mb IDE Hard Disc £825

'Phone us for latest prices!

ICS

051-625 1006

ICS (Ian Copestake Limited), Dept AC8, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

GET AN EXTRA DISK free!

Ensure your copy every month – SUBSCRIBE NOW

The new-look *Acorn Computing* is selling faster than hot cross buns on Good Friday. So make sure you get YOUR copy each month – either by placing a regular order with your newsagent or by taking out an annual subscription.

As a subscriber you will get an extra bonus. Not only will you have the Acorn magazine acclaimed that's for having the best cover disks of all, but you will receive an exclusive EXTRA FREE disk packed with software for either 32-bit or 8-bit machines.

If you have a 32-bit machine, your special subscriber disk will be brimming with utilities, excellent public domain software, games, demonstrations and much more.

If you have an 8-bit machine, such as the BBC B or Master, your special disk will contain ingenious and new programs written specially for the machines – PLUS you get a 20% discount on the subscription price.

Quantity and quality – that's got to be a combination you cannot ignore!

MegaDisks for 32-bit users are packed with top programs covering entertainment, utilities, desktop publishing and graphics, programming and education. Recent MegaDisks have included:

- *Interdictor flight simulator worth £36*
- *Key Word worth £30*
- *Repton 4 – exclusive level from Superior Software*
- *Micro-Trader accounts package*
- *Badger Trails educational adventure*

Look what you get when you subscribe!

- Bigger cash savings on reader offers
- Never miss a copy, it's guaranteed every issue
- Delivered FREE to your door
- Beat inflation price rises
- No risk. You may cancel at any time and we'll refund all unmailed issues.

BEST VALUE FOR YOU!

Acorn Computing is acclaimed the brightest and best read magazine for all Acorn users, helped by occasional special supplements and great reader bargains offers that save you £££s.

Month after month readers are presented with informed opinion covering all aspects of Acorn computing. Hardware and software is reviewed by top experts in their fields – people at the sharp end whether they are teachers, games players, graphic artists or technical experts.

It's packed with vital hints and tips and the very latest news on new hardware and software products. Steering clear of jargon, our technical writers use their extensive knowledge to help you make the most of your machine as well as setting challenges for the more adventurous.

COMPLETE THE ORDER FORM AND SUBSCRIBE NOW

Which subscription?

12 issues	Acorn Computing cover disk + subs disk	Acorn Computing and 40T BBC disk	Acorn Computing and 80T BBC disk
Subscription – *UK*	£34.95 ☐ 2552	£26.95 ☐ 2555	£26.95 ☐ 2558
Subscription – *Europe/Eire*	£49.95 ☐ 2553	£41.95 ☐ 2556	£41.95 ☐ 2559
Subscription – *Overseas*	£64.95 ☐ 2554	£56.95 ☐ 2557	£56.95 ☐ 2560

Deliver my magazine to

Name: _____

Address: _____

_____

Postcode: _____ Tel No: _____

☐ *Please tick if you do not wish to receive promotional material from other companies*

How to pay

☐ I enclose a Cheque/Eurocheque payable to Europress Publications Ltd

☐ Please debit my Credit Card Signed _____

No ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expires ☐☐/☐☐

Please return to:
Europress Direct, FREEPOST, Ellesmere Port, L65 3EB

You can also order through our 24 hour hotline:

Phone: 051-357 1275 Fax: 051-357 2813

DESKTOP VIDEO

ON THE MENU TODAY...

Wild Vision

Info

Image Processing

A3000 Expansion

Misc

Quit

High quality expansions for the Archimedes, A5000 and A3000 from the specialists in Desk Top Video.

Real Time Colour Video Digitisers
Use video or TV as a source for computer images. The popular Hawk V9 digitiser is the ideal solution wherever you need photograph-like sprites in colour or monochrome for DTP or Art applications. Wild Vision combine quality and performance with value; real-time colour digitisers available from £199.00.

Superimposing text, graphics or animation onto video
Simple, with a *genlock and overlay card*. The Chroma range is your route to creating and recording video masterpieces. Just let the film - and your imagination - roll! Chroma Genlock range from £215.00.

PAL encoding units with optional multiple display facility also available.

Data acquisition
The Archimedes is the ideal vehicle for the measurement and analysis of analogue signals such as sound or ECG readings. Wild Vision's high speed 12-bit analogue to digital converters are used in medicine, research, defence, and incorporated into turnkey systems. ADC1208 from £560.00.

Image Processing and Analysis
The Hawk V12 video framestores are designed specifically for image processing on the mighty Archimedes. With Foster Findlay's ArcImage software, a powerful image processing and analysis system is created. Hawk V12 from £1,990.00.

Expanded capacity for your A3000
Wild Vision's sturdy Expansion Box allows you to use standard Archimedes expansion cards with your A3000; up to three cards may be fitted at once. A3000 Expansion Box £139.00.

Contact Wild Vision for full details and price information on the above hardware and recommended complementary software.

Wild Vision, 15 Witney Way, Boldon Business Park, Boldon Colliery, Tyne & Wear NE35 9PE, Tel: 091 519 1455, Fax: 091 519 1929
Prices exclude carriage and VAT

WILD VISION

A personal invitation

OUR very own Mike Cook invites you to Manchester on Saturday 15 May to see his *Twin Peeps* stereoscopic 3D viewer for yourself. You can chat to Mike in his lair when the Manchester Metropolitan University Faculty of Science and Engineering has its Open Day in the John Dalton Building on Oxford Road – opposite the BBC.

As well as examining his impressive 3D viewer you can see how a hologram is made, marvel at super conductors and – clouds willing – look at sunspots. It's only Cup Final day so you'll have nothing else to do!

Hard news

A NEW range of hardware has now been released by HCCS (091-487 0760). Starting with the Wise 16-bit SCSI card which has been designed to be the fastest on the market. Until now this card was only available with Diamond drives but now it can be bought separately for £99.

The Ultimate SCSI card is designed with the A3010/20 and A4000 machines in mind and fits easily into the Ultimate Expansion System for £69. It provides a low-cost method of expansion for users who do not want to use their only expansion slot for a single SCSI card.

Both models of SCSI cards are fitted with external and internal connectors and come with Acorn CDFS as standard as well as SCSI-Mgr software for multi-user passwording and partitioning.

Payroll '93

A NEW version of Micro-Aid's (0465 82288) Payroll software is available for both 8 and 32-bit Acorns. The latest Archimedes version allows the program to be used from hard disk with the new *K* codes added to keep the program in line with legislation.

Micro-Aid's Extended Payroll has been in continuous production since 1982 and the price is still only £59.95 including VAT with an annual registration fee of £34.

The program supports all the Inland Revenue codes and can be used with or without Micro-Aid's pre-printed stationery.

Turbo-powered Acorns

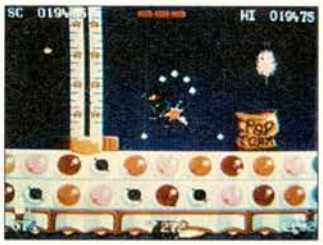
THE latest company to join Acorn in a marketing venture are Lotus Cars. The initiative was launched at the recent Ideal Home Exhibition and runs until 31 August.

Anyone can test their skills on a special version of Krisalis' Lotus Turbo Challenge 2 and if successful will win a limited edition Lotus Elan or Esprit scale model.

If your score is high enough, you could be one of the four regional winners to visit the Lotus factory and test drive the new Lotus Esprit S4.

You'll then battle it out to find the overall winner who'll receive an all-expenses paid trip to the Italian Grand Prix in September, as well as a special pass to the Lotus Formula 1 Team pits.

During the promotion Acorn will be producing a limited edition of their Family Pack containing an A3010, Lotus Challenge 2, Quickshot joystick, one year's on-site maintenance and software discount vouchers worth £200.



Console power on 32-bits

TOP games developers Gremlin Graphics (0742 753423) have made the leap from 16-bit and console games to the 32-bit. From next month all Acorn 32-bit users can discover – Zool the Ninja of the Nth dimension for themselves.

In a platform game using the graphics and polish for which Gremlin are famous, you jump, run, punch, kick, shoot, spin and climb your way from one predicament to another on seven worlds.

Puzzles abound and good mapping skills are vital especially if you want to avoid those arch-nasties the sweets – jelly blobs, chocolate spikes and hovering humbugs not to mention the Chupa Chup lollipops concealing those much needed bonuses. Add a little magic and you'll be ready to tackle jellies topped with cream.

Survive the sucrose extravaganza and there are worlds of Music, Tools, Fruit, Shoot-'em-ups, Fun Fairs and Toys all for £25.99.

Axe maiden adenventures

NEXT release from Krisalis (0709 372290) is Heimdall which is an unusual game as it uses four sub-games to determine character attributes before the main game is played.

For any closet Vikings out there the axe throwing sub-game will definitely remind you of a certain Kirk Douglas and Tony Curtis film. Brilliant graphics – and for anyone who has ever been to a Viking banquet – authentic sound.

RISC Developments Software

Masterfile 3

DATABASE MANAGER

Masterfile version 3 is the latest development in the best selling family of database programs for Acorn systems. It is fast, simple to use and provides powerful data management facilities suitable for home, education and business use. Included amongst its many features is a very comprehensive indexing system allowing data to be accessed in any order. In addition, subsets may be created allowing access to just those records that match the search criteria. Both indices and subsets are updated automatically when records are added, modified or deleted. The report generator allows databases to be printed in card or spreadsheet form, and provides full label printing facilities. To trade-in an earlier version of Masterfile, please return your original disc to the address below, and deduct £5 inc VAT from the price. Only one trade-in allowed per order.

Price: **£49**
Site licence: **£245**

Hard Disc Companion

HARD DISC BACKUP

Version II of Hard Disc Companion offers superior performance and efficiency. It has been completely re-written and is now twice as fast and even easier to use.It provides a structured approach to the backing up of hard drives, and the recovery of files in the event of disc failure or accidental file deletion. Both Full and Incremental backups are supported, and the files to be backed up or ignored may be specified using simple drag operations. The entire backup specification may be saved in a script file for use at a later date. Hard Disc Companion II uses an efficient compression system to backup as much data as possible onto the floppies without increasing the backup time. Separate applications are included to restore entire backups or just selected files.

Price: **£45**
Site licence: **£225**

Hearsay

COMMUNICATIONS

Hearsay II is the most advanced communications package available for Acorn systems. It is multi-tasking and fully RISC OS compliant and is designed for easy communications for the first-time user, but with a wide range of advanced features making it the professionals choice. Hearsay is ideal for use with Prestel, Telecom Gold, Campus 2000 and Compuserve, and also provides very high quality VT320, VT102, VT52 and Tektronix 4105 Colour terminal emulations for direct connection to mini and mainframe hosts. In addition it gives access to Minitel systems such as the Teletel service and provides Xmodem, Ymodem, Zmodem and Kermit file transfer, a comprehensive script language, an auto-dial number directory and drivers for most popular modems. Please write of phone for detailed specification.

Price: **£75**
Site licence: **£375**

PlayBack

MOUSE RECORDER

PlayBack allows recording in real-time of all mouse and keyboard operations as they are carried out. This new package will produce intriguing and eyecatching displays that will be of interest to home, education and business users as well as for training. It is an ideal tool for creating demonstrations or testing programs which run in the desktop. During desktop operation, all mouse operations and key presses may be recorded and saved to file. On playback everything will happen in exactly the same way, with the pointer following all the recorded movements, and text appearing on the screen as if typed from the keyboard. A synchronised text commentary maybe added, and recordings may be converted to ASCII format for editing. A play-only version is supplied which may be freely distributed with recordings.

Price: **£19**
Site licence: **£95**

RISC developments

RISC Developments Ltd.

117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All software is available from good dealers or direct from RISC Developments. Please add VAT to all prices and carriage of £3.00 for Hearsay and £2 for other software. Please write or phone for details of educational prices and site licences.

Stop Press

LEADING Edge (0243 530012) have made some changes to their Desktop Tracker (reviewed this issue) which now saves in a compressed file format – saving disk space.

In addition a musical score display and style changes conform to the latest Acorn style guideline. The Jukebox application has a random play option with the ability to have up to 40 selected tunes and an ever faster play routine. You also get 10 and 12-track tunes on a music disk too.

Oregan's (021-353 6044) Digital Symphony (also reviewed this issue) is now able to enter in real-time using Midi. The manual has also been rewritten and has a very useful tutorial section.

Oregan have also included some extra samples disks with hundreds of brand new synthesised sounds.

Vision on

HCCS (091-487 0760) now have Vision and HiVision colour digitisers available for all Acorn 32-bit machines apart from the A4. These are available on credit-card size expansion cards known as MicroPodules which will fit completely inside any Acorn model.

These economical cards only cost £49 for the real-time mono version or £129 for the high-resolution colour digitiser with the option to upgrade the original Vision digitiser from mono to colour and from colour to high-resolution colour as appropriate.

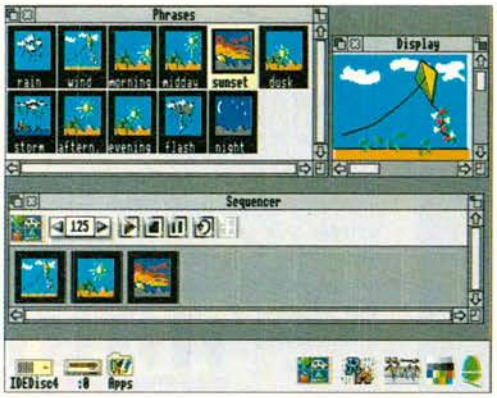
HCCS digitisers accept PAL vide from any camcorder or video recorder as well as the Canon Ion still video camera.

Budget air attack

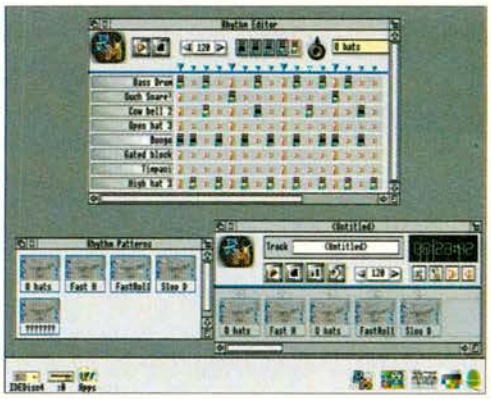
THE Datastream are best known for their public domain software, but they have just added to their catalogue a budget-priced flight simulator from the author of Wolfpack, Simon Perkin.

Strike Force features four missions and three different planes for you to fly – two state of the art and a World War I bi-plane – and costs £4.99.

The Datastream can be contacted at 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.



● *Compose World allows you to bring in pictures*



● *Rhythm Maker creating music in real or step time*

Expressive music and rhythm

MUSICAL software house Expressive Software Projects – ESP (0602 295019) – have released version 1.6 of Compose World.

This latest version has improvements to the windows and icons and ESP have increased the speed of screen, which is especially noticeable when you use the picture and phrase editors.

If you have access to Midi you can select Midi instrument sounds from within the program. The manual has been rewritten and the disk comes with some new sounds for your 32-bit Acorn too.

There is an upgrade option for registered users; all you have to do is return your original disk with £5. The new full price of Compose World is £48.

As well as working on Compose World, ESP have now finished Rhythm Maker which, for £34, will give you access to a way of creating your own rhythms using a grid editor in real or step time in any time signature whether you are using the computer's internal sounds or Midi.

The instruments in each pattern can be edited as you want and a number of functions can be used to add fade, echo, fill and shade. Any number of patterns can be created and sequenced in any order or combination using the sequencing grid where dynamic control over the volume and tempo can be added as well as extensive looping facilities.

Chaotic construction

DUTCH company Focus have released their first commercial game for the Acorn range. Called Mayhem, it is a mixture of Tetris and TacTic with some nice extra bits thrown in.

Mayhem comes with ray-traced graphics and good sound and the added bonus of a level designer. Focus can be contacted at Van Beuningenstraat 40, 2582 KJ, The Hague, The Netherlands.

Acorn Dalek monitors consciousness

MEDICINE has long been an area where 8-bit and 32-bit Acorns have played an important role and the March 4 edition of *Hospital Doctor* proved that this is still very much the case. Prof. Thomas Healy with Doctors Robert Sneyd and Chris Pomfrett have developed a non-invasive monitoring system based around an A310 which is set to put an end to patient awareness while under anaesthesia.

Dr Pomfrett is a registered ISV with Acorn and has been using Archimedes machines since 1990. He has six Acorn systems at work on neurophysiological analysis in his labs and this latest invention has been named the Dalek with the software specifically written in a mixture of C, Basic and Assembler. What is more, it has won its team a £45,000 award from the DTI to produce the system commercially.

Developed at Withington Hospital, Manchester, the Dalek monitors an individual's depth of consciousness, providing an early warning system for the anaesthetist.

● *Follow the way of the shadow warrior to achieve success*

Removing the dragon

HAVE you completed the Last Ninja game on April's MegaDisk? Well if the dragon is proving a little tricky, here are four pictorial steps to get through it.

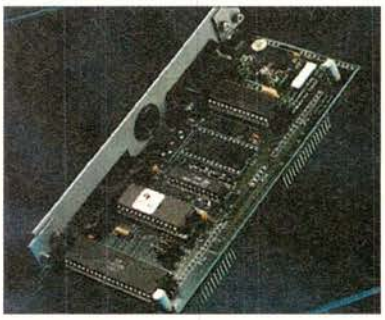
Computers for schools '93

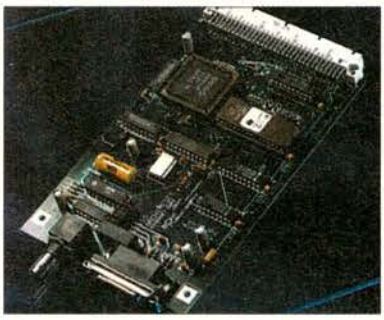
LAST year's successful Acorn/Tesco promotion has borne fruit in a similar scheme this year. It runs until 23 May and offers thousands of schools the opportunity to obtain Acorn hardware and software.

For every £25 spent at Tesco, a computer voucher is issued and last year there were reports of resourceful schools resorting to some ingenious plans. A special catalogue has been produced and there is a schools hotline on 071-580 9370 for general enquiries.

Around 8,000 schools received Acorn computers, printers, hard drives and software to the value of almost £3 million.

So with 1,200 vouchers needed for an Acorn Pocketbook and software starting at 200 vouchers, start shopping.





Making the connection

RISC Developments (0727 40303) have produced a range of interfaces for the entire Acorn range – except the A4 which has no expansion area.

Different sized cards are available, for example, a mini podule for the A3000 and A3010.

Using the AUN software, these cards keep their Econet compatibility but run much faster. Half-width cards for the A5000 and older models cost £139 as do the mini expansion cards for the A3000/A4000. The internal network cards for the A3020/A4000 cost £159.

Risc have also launched a card for the A3000/4000 providing a user port and analogue converter for £44.95, and an Econet interface version for £79.95.

This board provides a boot rom capable of holding the code required to run in an AUN environment so there is no need for floppies – a big advantage.

Diary Dates

ECTS Spring 1993
4-6 April. Business Design Centre, London. Contact: Blenheim (081-742 2828)
Acorn User Spring Show 93
15-17 April. International Centre, Harrogate. Contact: Safesell (0737 814713)
Lindis Computer Carnival
11-12 June. County InSET Centre, Witard Road, Norwich. Contact: Lindis (0986 85476)
Introduction to Computing Course
1-7 August. Loughborough University, Leicestershire. Contact: Margaret Gill (0509 222153)
Acorn World
29-31 October. Wembley Exhibition Centre, London. Contact: Acorn (0223 254254)

Public performance

CLARES (0606 48511) are about to release !Perform, a Rhapsody and Midi file *player* supplied with the VoxBox suite, into the public domain.

The program lets you play up to 12 Rhapsody scores in sequence – like a jukebox – as well as Midi files, Armadeus samples and even voice modules.

At your service

IF you need the occasional large colour print, Micro Laser Designs (0761 453308) are now offering a colour laser printing service up to A3 size.

They are fully equipped to take Impression and ArtWorks files as well as draw and sprite files complementing their imagesetting to film, bromide or Plazar plate.

On the move

Two companies have changed their addresses. Kudlian Soft can be found at 8 Barrow Road, Kenilworth CV8 1EH Tel: 0926 851147. The ARM Club can be contacted Freepost (ND6573), London N12 0BR.

AUN Teletext

XOB (0307 84364) have announced a new version of their teletext server to support AUN so that it will deliver teletext pages to stations on Econet and Ethernet networks, over bridges and through gateways.

This multi-tasking program features intelligent queueing and page buffering and takes its pages from Morley's teletext adaptor.

XOB also supply terminal software for BBC B and Master series and the cost of of site licence for their AUN compatible teletext server is £154.

Ooops

In our March edition we published the fax number for Words and Music instead of their voice line. So if you want to access their range of Midi files for Acorn machines, contact them on 091-529 4788.

In addition the price of QuickTile from Desktop Projects (061-474 0778) is £25 plus VAT.

Authorised Education Dealers

47 Winchester Road, Four Marks, Alton, GU34 5HG, Hampshire

Phone NOW

0420 561111 Alsystems

IBM Canon SJ RESEARCH

All prices exclude VAT and carriage
These prices cannot be guaranteed due to currency fluctuations

A5000/400/300 SCSI Hard Discs

16 Bit	Cumana SCSI Interface	£139.00
16 Bit	Morley SCSI Cached Interface	£179.00
85Mb	Conner SCSI Hard Drive	£198.00
121Mb	Conner SCSI Hard Drive	£235.00
170Mb	Conner SCSI Hard Drive	£266.00
212Mb	Conner SCSI Hard Drive	£345.00
540Mb	Conner SCSI Hard Drive	£660.00
765Mb	Micropolis SCSI Hard Drive	£790.00
1050Mb	DEC SCSI Hard Drive	£999.00
2000Mb	DEC SCSI Hard Drive	£1799.00
3500Mb	DEC SCSI Hard Drive	£2999.00

A5000/400/300 IDE Hard Discs

40Mb	Conner IDE Hard Drive	£125.00
85Mb	Conner IDE Hard Drive	£179.00
121Mb	Conner IDE Hard Drive	£210.00
212Mb	Conner IDE Hard Drive	£325.00
251Mb	Conner IDE Hard Drive	£353.00
360Mb	Conner IDE Hard Drive	£599.00
540Mb	Conner IDE Hard Drive	£695.00
1050Mb	Micropolis IDE Hard Drive	£1176.00

Hard/CDROM/Cartridge Drives and Miscellaneous

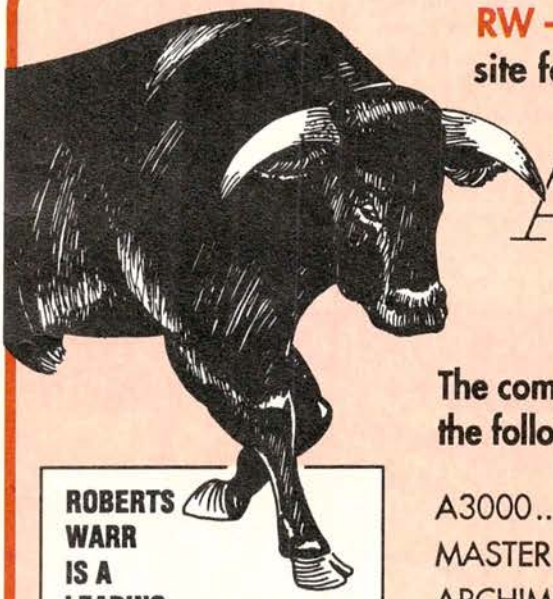
Syquest 44Mb External SCSI Cartridge Drive	£390.00
Syquest 88Mb External SCSI Cartridge Drive	£475.00
Cumana External SCSI CDROM Drive	£389.00
Special Cumana CDROM Pack (Including Interface)	£547.00
Morley External SCSI CDROM Drive (Including Interface)	£489.00
A3000 Series HCCS 30Mb IDE HD + User Port	£199.00
A3000 Series ICS 60Mb IDE Hard Card	£274.00
A3000 Series ICS 80Mb IDE Hard Card	£324.00
A3000 Series ICS 120Mb IDE Hard Card	£424.00
A3020/A4 Conner 60Mb 2.5" Internal IDE Hard Drive	£225.00
A3020/A4 Conner 85Mb 2.5" Internal IDE Hard Drive	£235.00
A3020/A4 Conner 120Mb 2.5" Internal IDE Hard Drive	£317.00
Aleph One PC 386 Card with 1Mb RAM	£375.00
Aleph One PC 486 Card with 4Mb RAM	£569.00
A5000 Second Drive Fitting Kit	£19.95
External Hard Drive Casing for SCSI Drives	£65.00
IDE Interface for A300/400 series	£65.00
A310 Backplane plus Fan	£63.00
Alsystems Fitting/Assembly Charge	From £10.00
A3000/4000 Series 4Mb Turbo RAM Upgrade - NEW	£129.00

We specialise in

Hard Drives
CDROM Drives
Optical Drives
Cartridge Drives
Tape Streamers
DAT Streamers
PC 386/486 Cards
Graphics Cards
Colour Scanners
ION Cameras
Desktop Video
Econet Cards
Ethernet Cards
Printers
Networks
Desktop Publishing
RAM Upgrades
and much more...

Why not give us a call ?

Unix - Network Specialists - Repairs and Maintenance



RW — The Power Supplier — is now an Acorn approved site for complete repairs, refurbishment of out of warranty power Supplies for all Acorn computer systems

Acorn POWER SUPPPLIES REPAIR & REFURBISHMENT

The complete service comes with a renewed six months warranty on the following Power Supplies at very competitive rates.

A3000	£11.00
MASTER 128	£16.00
ARCHIMEDES	£16.00
A680	£19.90
A4 NOTEBOOK	£16.00
A5000	£19.90
A4000	£16.00

Exclusive of VAT and Carriage

ROBERTS WARR IS A LEADING DISTRIBUTOR FOR SWITCH MODE · LINEAR DESK TOP WALL MOUNT and EURO CARD POWER SUPPLIES

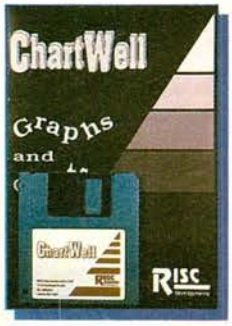
Telephone or Fax for a copy of the catalogue describing your particular interest. *(Please specify)*

RW

ROBERTS WARR ELECTRONICS LIMITED

PO Box 2 · Honiton · Devon · EX14 0NB
Telephone: 040484 648/649 · Fax: 040484 575

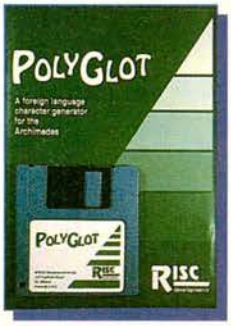
ChartWell



ChartWell is a comprehensive but easy-to-use chart and graph package providing bar charts, pie charts, line graphs, scatter graphs and polar plots with a wide variety of types and many user selectable features. Import data from other files in standard formats; export in Draw file format. Flexible data selection and ordering; useful 'save options' feature.

£29.95 inc.Vat
p&p £2.00

Polyglot



This is a highly flexible package which can be readily customised to the needs of the user. PolyGlot allows you to access all the characters not normally found on the keyboard from simple user defined windows; ideal for word processing, DTP work etc. in foreign languages. Can also be used for other groups of special symbols (e.g. mathematical). Full printer support.

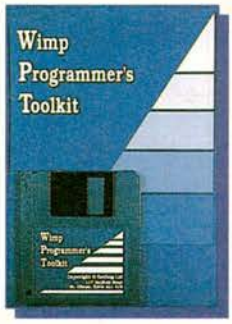
£19.95 inc.Vat
p&p £2.00

DeskEdit 2

DeskEdit 2 is probably the most comprehensive editor available for the Archimedes with extensive features for editing ASCII text, Basic, C or other programming languages.
"DeskEdit 2 has far more in the way of text editing facilities and a remarkably comprehensive list of features to support Basic and C programmers - indeed it is difficult to think of anything that could be added" - ***Archimedes World, February 1993.***

£31.95 inc.Vat
p&p £2.00

Wimp Programmer's Toolkit



This is a collection of 12 multi-tasking applications to assist in the development and debugging of Wimp programs written in Basic. Ideal companion to the book Wimp Programming for All.

£19.95 inc.Vat
p&p £2.00

File Handling for All by David Spencer and Mike Williams

This book covers in some detail all the principles and techniques required to program file handling applications in Basic including sequential files, indexed files, file and record pointers, search and sorting.

Book **£9.95**
Disc £4.75
p&p £2.00

Wimp Programming for All by Lee Calcraft and Alan Wrigley

This book provides a comprehensive introduction to the many details of Wimp programming in Basic, dealing with the Wimp poll loop, windows, icons, menus, file transfers, outline fonts and much more.

Book **£12.95**
Disc £4.95
p&p £2.00

RISC Developments ltd. 117 Hatfield Rd. St.Albans Herts AL1 4JS. Tel 0727 840303 Fax 0727 860263

A rabbit free zone?

THOSE nasty humans have captured all the Easter Bunnies. They probably got really cheesed off with the damage the rabbits did to the crops so they have popped them into cages. Some of these little boxes contain one bunny while others have two.

Actually, the humans have missed one of the little fluffy bundles. Hazel, the king of the rabbits, is still free and if he can rescue some of the captives he'll be able to create a perfect new colony.

Now rabbits are a bit like Lemmings – they don't like overcrowding – and the only way for you to succeed is to make sure that there are exactly 30 rabbits in the colony. If more are released anarchy will break out and Hazel will be killed.

This is where you come in. Hazel can't tell how many rabbits are in each cage. Neither does he know if one of the boxes is a poison trap. You can steer him to the correct boxes to help him to form his perfect colony. You must make sure that Hazel stays well clear of his followers.

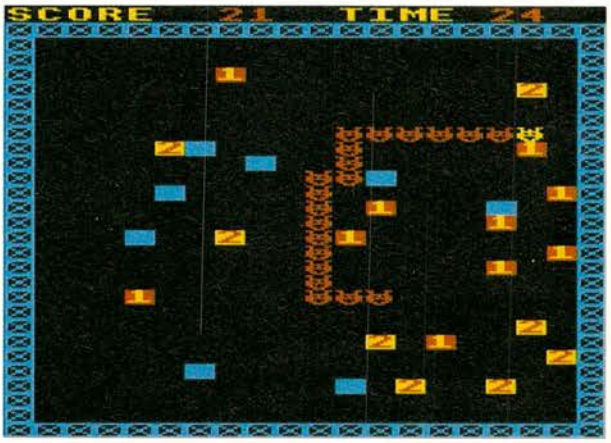
After their spell in prison they are pretty snappy and can't cope with contact. They will kill Hazel if he gets too close.

If you succeed you'll get a score based on how fast you were and you'll get another go with more poisoned cages to trap you.

If you haven't realised yet, Brighteyes is a variant on that old computer favourite, the snake game. This version has been written with youngsters in mind, but I'm still not sure when people stop being youngsters.

You can pretty well guarantee that each person will have a short and furious turn before they lose their one and only life. Then someone else can play. It's an ideal game for those dull Easter holiday days when groups of kids meet up with nothing much to do.

Rog Frost



● *Rabbits off to form a new colony*

Protected input: Idiot-proofing your program

ONE area lacking early commercial software for the BBC Micro was data input. Many of the pioneer programs were written in Basic and made use of the unsophisticated *INPUT* and *INPUT LINE* commands which contained a nasty loophole.

They allowed all the special control codes to be entered in the same way as any other character. For example, codes switched the printer on, cleared the screen, changed mode or even redefined the palette could be sent randomly from the keyboard while the program was running. Most machine code programs, however, avoided such a loophole. As assembly language provides few facilities as standard, all routines such as input or string printing have to be hand-made by the programmer.

Because of this, generally more sophisticated input sequences were developed: Each character entered would be individually validated, spurious codes being ignored.

So why not apply the same philosophy to Basic programs? This program is a general solution which treats all standard Ascii codes – 32 to 126 – as valid. All top-bit set characters and control codes – except three – are ignored.

Two control codes which are accepted are the Return (13) and delete last character (127). Without these there would be no way of altering or terminating input. Code 21 – Control+U – is also supported, allowing the whole string to be deleted.

In the program, the main procedure is *input* which takes three parameters: The maximum number of characters to accept, followed by the X and Y co-ordinates at which to conduct the input.

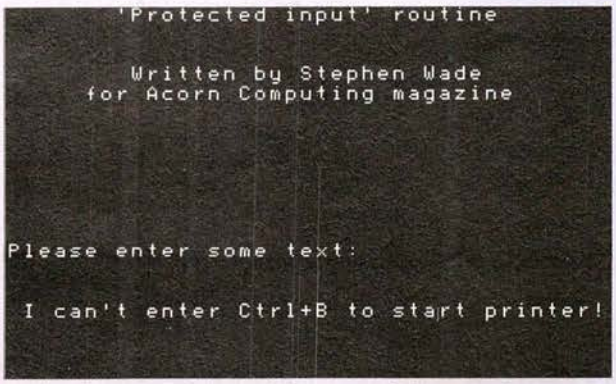
Data is received and validated in a REPEAT...UNTIL loop. *PROCclear* is used to delete the whole string, *PROCadd* to add the latest character and *PROCsubtract* to delete the last character entered.

Sufficient error checking is made throughout and the last three procedures incorporate sounds to make both themselves and their range limits easier to identify. This feature can be easily removed.

With slight alteration the routine can be primed to be mathematically dedicated: It would accept numbers and operators alone, and use VAL, ASC and EVAL to aid in calculations and evaluation.

It can also be extended to allow movement within the string using the cursor keys with insertion and deletion inside the string itself.

Stephen Wade


'Protected input' routine
Written by Stephen Wade
for Acorn Computing magazine
Please enter some text:
I can't enter Ctrl+B to start printer!

● *There's not much to see, it's a very safe input routine*

Acorn COMPUTING

Don't miss out on the great programs for the Acorn 8-bit machines that you can receive every month. From listings written specially for *Acorn Computing* readers to an excellent selection of PD programs.

Subscribe now, turn to Page 17

Screen fade: It all went black

Most 32-bit games or demos would not be complete without their smooth screen fades – which shade all the on-screen colours to black. But on the BBC Micro a good screen fade was hard to find, until now.

The main problem with writing screen fading routines for the BBC micro is that it does not have enough colours to fade the screen smoothly. Instead of redefining each colour to a slightly darker shade every 1/50th of a second, this program gradually changes each byte on screen.

When run, it assembles the screen fade code and asks for a filename. If you do not want to save it, press Return and it will then demonstrate the fading routine by randomly choosing mode 0, 1 or 2 and fading a set of filled, colour triangles.

The saved code loads in at &900 – so it will not interfere with any Basic program – but it will corrupt the sound envelopes 5-16, so if you are using any of these, be sure to redefine them after running the program. The routine uses memory locations &70 to &73, but the original contents of these are preserved, along with the contents of the registers A, X and Y.

The screen fade code works by first preserving the memory locations &70-&73 and the registers, then entering the loop to fade the screen. The first loop, *dofade*, calls the *fadescreen* routine, then it checks to see whether all the screen is blank, by comparing the number of blank screen bytes (in &72/&73) with &5000 – the size of the screen.

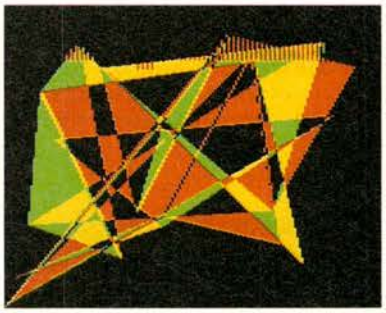
If the screen is blank, the loop ends and the registers are restored as the program exits. If the screen is not blank, the program loops back and repeats the above process.

The *fadescreen* routine first sets up the screen location pointer at &70/&71 to &3000 – the start of the screen memory, and the number of blank screen bytes – at &72/&73 – to 0. The registers for the *fadeloop* routine are then set up. X holds the high byte of the size of the screen for the fade count down and Y holds the offset into the screen from the pointer at !&70.

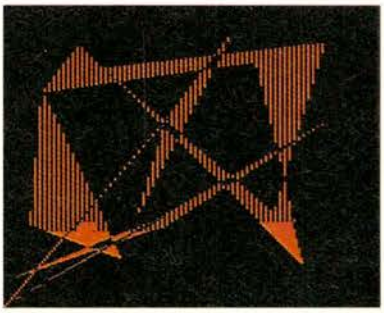
The fadeloop routine then goes through the whole of the screen memory, checking each memory location. If it is not 0, the program shifts the bits right by one place causing the gradual darkening of the colours. If the memory location does hold 0, the program adds 1 to the list of blank screen bytes. The loop repeats until the all the screen has been faded.

Steve Harrison

● *Before the fade...*



...as it proceeds...



...and nearly finished

FAULTY DISK?

If your subscription disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

Datapulse Disk
Unit 5
Station Road
Hungerford
Berkshire RG17 0L7

If there seems to be a fault with one of the programs please contact us at the magazine by post describing your machine set-up and exactly what happens when you run the problem program.

Days: Live long and prosper

```
Enter the first date:
Day of the month 12
Month of the year 9
Year in full 1960
Enter the second date:
Day of the month 9
Month of the year 3
Year in full 1993
     11866 days
Another? Press Space
```

● *Find out the difference in days between dates*

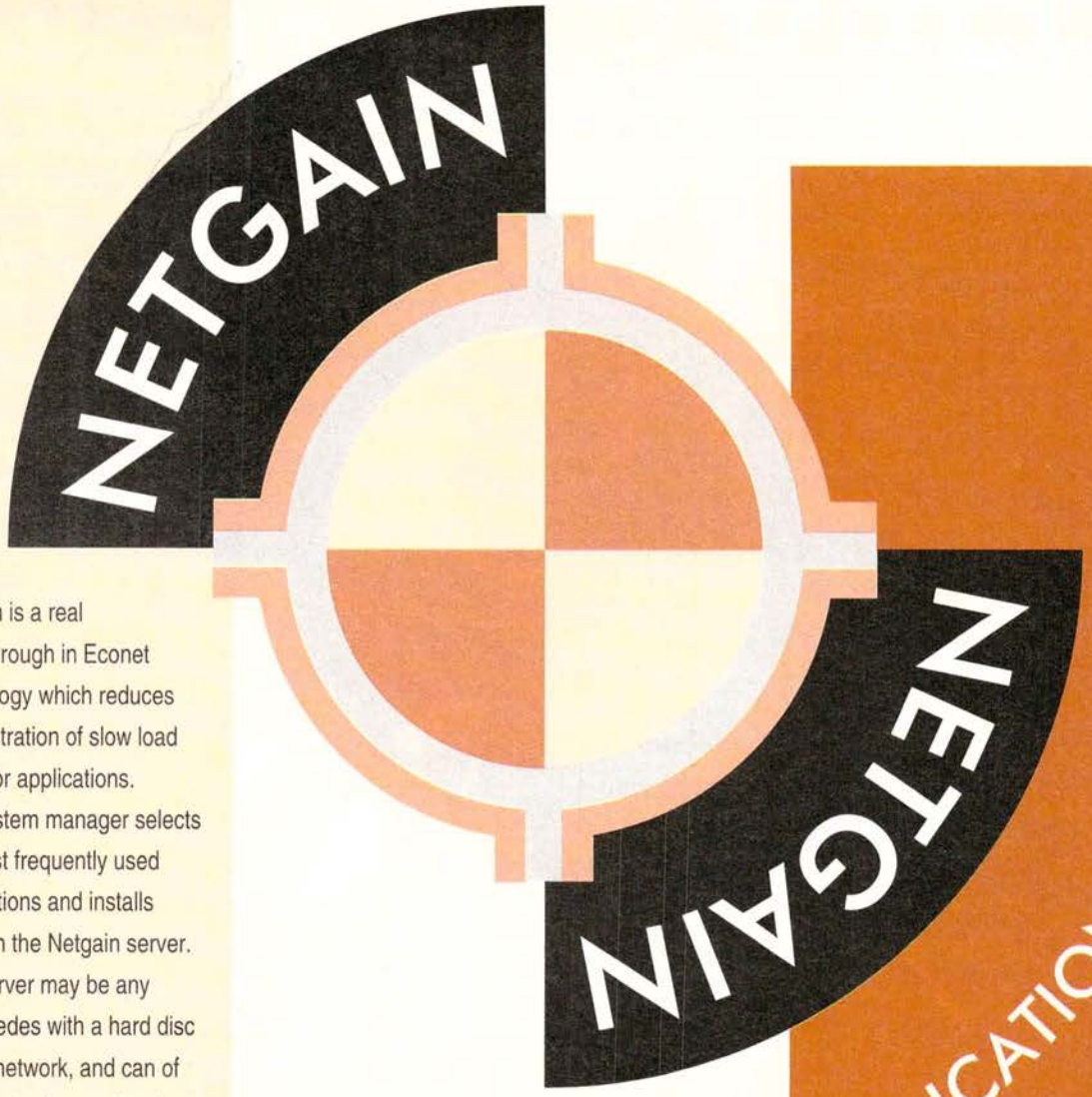
IF you have ever wondered how many days you have been born this program will tell you. Any dates from 1753 onwards will work, but not earlier because of the change from the Julian to Gregorian calendar in 1752 when the next day after 2 September was 14 September.

Some of the people thought they were losing out and there were cries of *Give us back our 11 days*.

The change was necessary because the Julian calendar of 365.25 days was about 11.25 minutes longer than the solar year which meant that the calendar became out of phase with the seasons. With the Julian or *old style* calendar the legal year had, since the 14th century, begun on 25 March. The Gregorian or *new style* calendar established the beginning of the year as 1 January.

A further change was that the centennial years would not be leap years unless divisible by 400, so the year 2000 will be a leap year although 1800 and 1900 were not. The program is able to take account of leap years where appropriate.

Jon Millington



HIGH SPEED APPLICATION LOADER

Netgain is a real breakthrough in Econet technology which reduces the frustration of slow load times for applications.

The system manager selects his most frequently used applications and installs them on the Netgain server. This server may be any Archimedes with a hard disc on the network, and can of course also be running the Level 4 fileserver software. From then on these applications are available to any user on the network that is designated to receive the Netgain service. Selecting which computers are Netgain clients is achieved by simply selecting their station number in the management software.

To the user, Netgain appears on the icon bar as a standard Acorn filing system, just like a floppy drive or network. The user simply clicks on the icon to open a directory viewer containing his applications. These may be loaded at hard disc speed simply by clicking.

Netgain is compatible with all types of Acorn fileserver as well as SJ Research MDFS.

Server Pack
including Server Podule and software for the first 10 stations
£200.00 plus VAT

Additional 10 user packs
£100.00 plus VAT

digital services
9 Wayte Street, Cosham, Portsmouth
Hampshire PO6 3BS Tel 0705 210600

TECHNODREAM

TECHNODREAM

At last, the action-packed sequel which everyone has been waiting for! Now, in addition to a 1 player option, you can choose to have 2 players simultaneously. Now, in addition to horizontal parallax scrolling, there is vertical scrolling to give a much enlarged playing area.

You have been directed by the Terran Defence Agency to pilot the new V7 Terrastormer against the alien forces. Although vastly out-numbered, and initially out-gunned, you can collect extra primary and incendiary weapons and shields as you progress through Outer Space, the Satellites of Kirius and, finally, for the fearless few, the Colonised Worlds.

There are 18 increasingly fiendish stages, with brilliant arcade-quality graphics and massive animated sprites, plus digitised sound effects and 6 atmospheric pieces of stereo music. Control by keyboard or joysticks (Acorn A3010 or RTFM).

Acorn 32 Bit Computers £24.95 (inc VAT)

Other Acorn 32 Bit titles available for immediate despatch by 1st class post:

PLAY IT AGAIN SAM 1 – Four top quality, classic games, for the price of one!
Conqueror, Rotor, No Excuses, Hostages ..... **£24.95** (inc VAT)

THE LAST NINJA – 140 screens of Ninja action and strategy ..... **£24.95** (inc VAT)

AIR SUPREMACY – The unique air/ground/sea strategy game ..... **£24.95** (inc VAT)

EGO: REPTON 4 – Brilliant, new Repton puzzle game ..... **£24.95** (inc VAT)

REPTON 3 – Four-game compilation plus game designer ..... **£24.95** (inc VAT)

SPEECH! – The widely praised speech synthesiser ..... **£24.95** (inc VAT)

All our Acorn 32 Bit titles are suitable for the full range of Acorn RISC OS computers, i.e. Acorn A3000, A3010, A3020, A4000, A5000 and Archimedes.

BBC Micro, BBC Master 128, Master Compact and Electron owners. Please note that we have a massive range of games available for these computers, including several compilations. Write to the address below or phone for an illustrated list of all our titles for these computers.

SUPERIOR SOFTWARE

(Superior Software is a trading name of Superior Microcomputing Ltd.)
Dept. E2, P.O. Box 6, Brigg, S.Humberside DN20 9NH. Tel: (0652) 658585

PLEASE MAKE CHEQUES PAYABLE TO "SUPERIOR SOFTWARE."

Access VISA

24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched by first-class post
- Postage and packing is free
- Discs that are faulty on receipt will be replaced immediately

(This does not affect your statutory rights)

The MegaDisk

DrumKit: Sounding off

Following this month's musical theme, there's a great little drum kit written for you by Mike Goldberg.

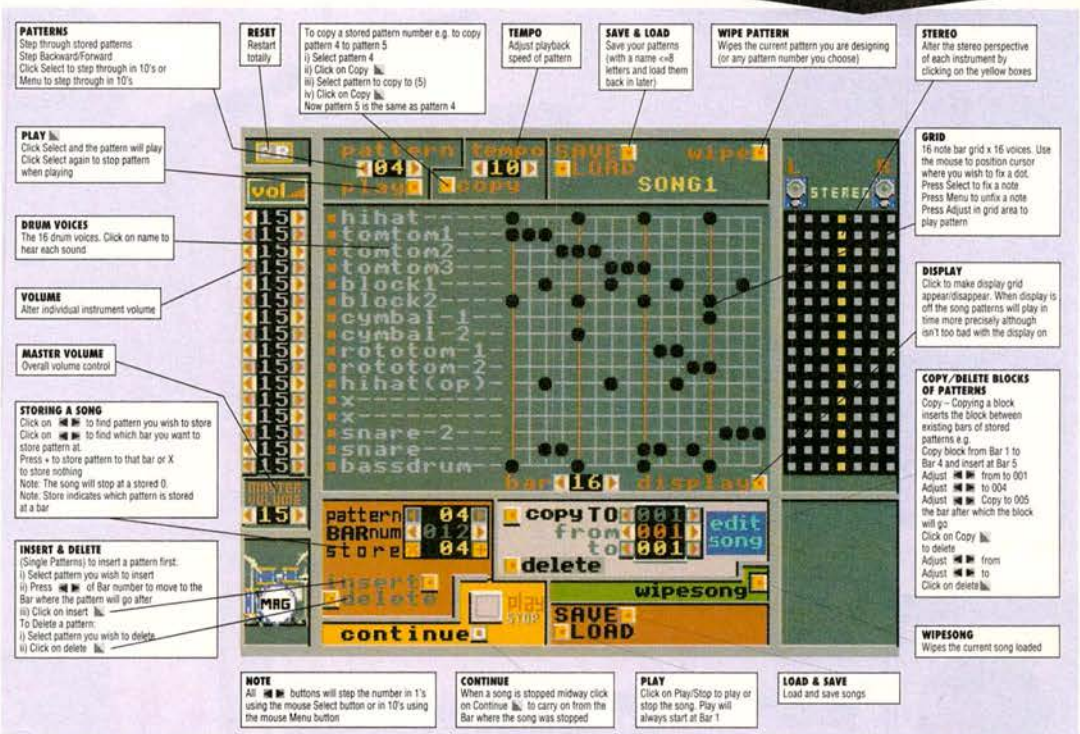
Analyse: Find out what your program really did

Written using Archway, Analyse is a program with appeal to dabblers and programmers alike. If you drag a Basic datafile to the Analyse icon on the iconbar you'll be greeted with the contents of the file showing the type of variable and the value it contains.

If Analyse doesn't understand the file it will report an error and let you know where any corruption can be found.

A useful tool for anyone developing programs as you can use it to see what is really being written to a file, rather than what you think should be.

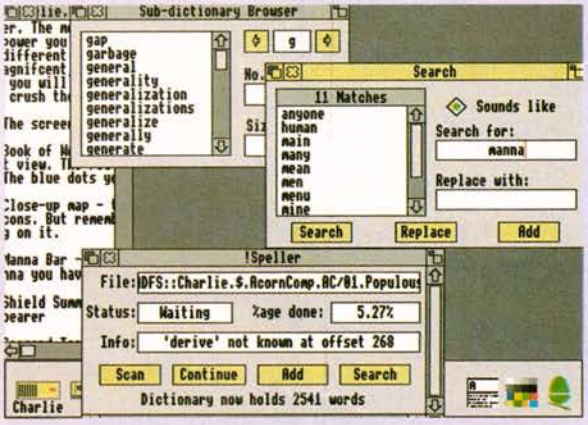
Graham Kendall


PATTERNS
Step through stored patterns
Step Backward/Forward
Click Select to step through in 10's or Menu to step through in 10's
RESET
Restart totally
To copy a stored pattern number e.g. to copy pattern 4 to pattern 5
i) Select pattern 4
ii) Click on Copy
iii) Select pattern to copy to (5)
iv) Click on Copy
Now pattern 5 is the same as pattern 4
TEMPO
Adjust playback speed of pattern
SAVE & LOAD
Save your patterns (with a name <=8 letters and load them back in later)
WIPE PATTERN
Wipes the current pattern you are designing (or any pattern number you choose)
STEREO
After the stereo perspective of each instrument by clicking on the yellow boxes
PLAY
Click Select and the pattern will play
Click Select again to stop pattern when playing
DRUM VOICES
The 16 drum voices. Click on name to hear each sound
VOLUME
Alter individual instrument volume
MASTER VOLUME
Overall volume control
STORING A SONG
Click on to find pattern you wish to store
Click on to find which bar you want to store pattern at.
Press + to store pattern to that bar or X to store nothing
Note: The song will stop at a stored 0.
Note: Store indicates which pattern is stored at a bar
INSERT & DELETE
(Single Patterns) to insert a pattern first.
i) Select pattern you wish to insert
ii) Press of Bar number to move to the Bar where the pattern will go after
iii) Click on insert
To Delete a pattern:
i) Select pattern you wish to delete
ii) Click on delete
GRID
16 note bar grid x 16 voices. Use the mouse to position cursor where you wish to fix a dot.
Press Select to fix a note
Press Menu to unfix a note
Press Adjust in grid area to play pattern
DISPLAY
Click to make display grid appear/disappear. When display is off the song patterns will play in time more precisely although isn't too bad with the display on
COPY/DELETE BLOCKS OF PATTERNS
Copy – Copying a block inserts the block between existing bars of stored patterns e.g.
Copy block from Bar 1 to Bar 4 and insert at Bar 5
Adjust from to 001
Adjust to 004
Adjust Copy to 005
the bar after which the block will go
Click on Copy to delete
Adjust from
Adjust to
Click on delete
WIPESONG
Wipes the current song loaded
NOTE
All buttons will step the number in 1's using the mouse Select button or in 10's using the mouse Menu button
CONTINUE
When a song is stopped midway click on Continue to carry on from the Bar where the song was stopped
PLAY
Click on Play/Stop to play or stop the song. Play will always start at Bar 1
LOAD & SAVE
Load and save songs
pattern
tempo
SAVE
wipe
LOAD
SONG1
vol
play
copy
STEREO
hihat
tomtom1
tomtom2
tomtom3
block1
block2
cymbal-1
cymbal-2
rototom-1
rototom-2
hihat(op)
snare-2
snare
bassdrum
bar 16
display
pattern 04
BARnum 012
store 04
copy TO 001
from 001
to 001
edit song
delete
wipesong
insert
delete
play
STOP
SAVE
LOAD
continue

Speller: Don't get your mords wuddled

A spelling checker is an essential application and Speller is not only easy to use but comes with some very useful search facilities. You can scan through textfiles, checking each word against those in the dictionary and Speller reports any it doesn't recognise. If a word has been misspelt or is just not listed it can be edited or added to your dictionary.

Speller loads when you double-click its icon or one of its dictionaries but only one dictionary can be loaded at once. Next you should drag your textfile on to the iconbar icon. Pressing Select on the Speller icon will reveal the main window. This shows the name of the textfile, percentage scanned and an information bar. Four action buttons and the number of words the loaded dictionary contains can also be found here as well as information on its status:



Idle	Scanning hasn't started or has finished
Scanning	Scanning is taking place
Waiting	Scanning has temporarily stopped while Speller waits for you to do something

Clicking on *Scan* in the main window, starts the scan from the beginning of the file and continues until an unknown word is found. At this point the percentage done icon is updated, the status icon shows that Speller is waiting, a message is displayed in the information bar and the word is highlighted in the text window. You can now do one of three things:

Continue	Resumes the scan
Add	Places it in the dictionary in alphabetical order
Search	Places the word in the *Search for* field and automatically searches for this word. There is also a *Sounds like* option.

The dictionary file is automatically built up by scanning files. Obviously to begin with all words scanned will be unknown, but as the dictionary increases with size, the scan will report less correctly spelt words and only misspelt ones.

You can save or delete words from your dictionaries as and when you want while the browse option lets you read through the 26 sections – one for each letter of the alphabet.

Lee Noar

WANT ANOTHER DISK?

If you subscribe to *Acorn Computing* you receive a second disk each issue. This month's disk contains:

- A selection of Public Domain programs
- The 8-bit listings
- Serenade demo from Clares
- Demo of Digital Symphony from Oregan

See page 17 for further details on how to get your subscription to *Acorn Computing* and the extra disk

A Beginner's Guide to Logo...

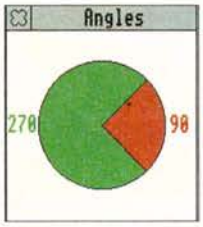
FIRST LOGO

Single User £24.00
Primary Site Licence £72.00
Secondary Site Licence £120.00
excluding VAT

Slates allow easy entry of commands, simply by clicking

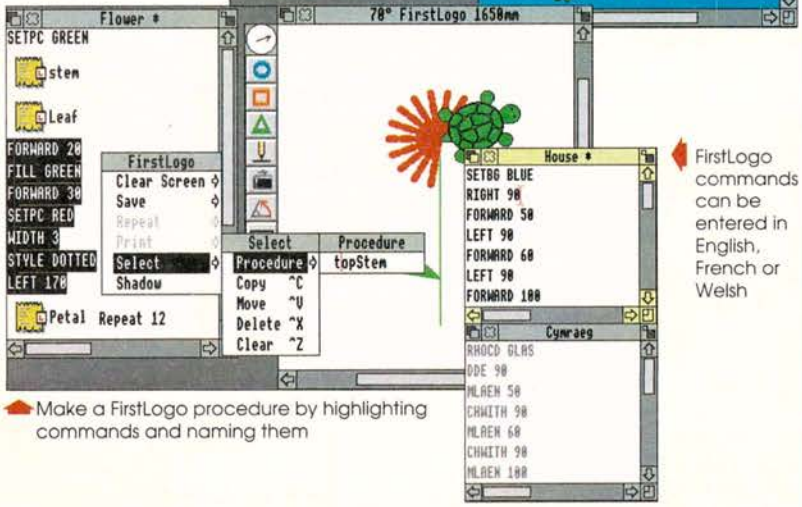
Take the turtle for a journey around town!

A large range of options make FirstLogo easy to configure for specific needs



Just point and click to measure an angle or distance

There are many exciting activities to try, such as this UK based map activity



FirstLogo commands can be entered in English, French or Welsh

Make a FirstLogo procedure by highlighting commands and naming them

- Commands are input via the keyboard, slate, or - *using the unique interactive turtle* - dragging the pointer round the screen.
- Standard RISC OS environment for ease of use and familiarity.
- Intuitive and highly visual creation and manipulation of procedures.
- Easily accessible activity based documentation.
- "Tool Kit" for quick drawing of geometric shapes, measurement of work and input of common commands.
- Unique "step" feature allowing commands to be executed one at a time with user-definable delay between each one.
- Simultaneous translation of commands between English, French and Welsh.
- One-to-one match between screen measurements and printed copy.
- FirstLogo doesn't pretend to replace the power and functionality of a full implementation of Logo, but does offer a valuable and unique Logo first step for beginners of all ages.

For further details please contact the sales department at:

Longman Logotron
124 Cambridge Science Park
Cambridge
CB4 4ZS
Tel: (0223) 425558
Fax: (0223) 425349

LONGMAN LOGOTRON

Counting the days

ACORN COMPUTING EXCLUSIVE

Is Almanac a cure for Filofax junkies or an essential tool for any Acorn user? Pam Turnbull investigates

PRODUCT SPOTLIGHT

Product: Almanac
Price: £60+VAT
Supplier: Stallion Software, Arundel House, Arundel Road, Camden, Bath BA1 5JX.
Tel: 0225 483236

I HAVE tried several products for the Acorn machine intended to organise my life and I particularly remember Genie and Fax*file manager. But I always return to a mixture of diary, calendar, address book and endless lists. Stallion Software's latest product aims to change all this.

The name Almanac doesn't give anything away and no way hints at the power of this product which is ideal for anyone using their machine on a day-to-day basis and could prove indispensable for networked machines.

In its simplest terms Almanac is a fully multitasking on-screen diary, appointment manager and address book. In fact it's a flexible database which can link all the events of your personal and business life – and it's this linking which is the source of Almanac's power.

There are five basic types of record you can create:

- *Diary*: Events that will occur at a specific time, may repeat a few times and then end.
- *Anniversary*: Events which begin at a certain date and repeat each year. An age is given so you always know exactly how old a person is, or which anniversary it is.
- *To do*: Events that have a start date and a due date, with options to be urgent and to be displayed only during the working week. You can also mark them as done before their completion without removing them.
- *Correspondence*: Marks the sending or receipt of some communication. It can be linked to an external file – perhaps a letter – so you can find what was in the correspondence that you sent with just a click of a button.
- *Address*: A name and address database but with lots of fields for phone numbers and extra notes. There's also a search function and the ability to create other record types.

So far Almanac could be a fairly ordinary program, but every record can be linked to any other. So you could link correspondence to address and be able to show all the letters, phone and fax messages sent to and received from a particular person.

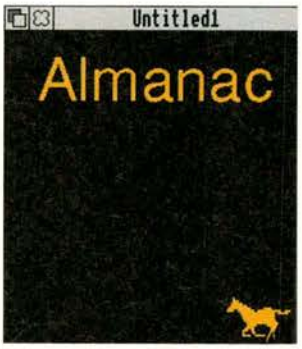
In this kind of application privacy may be essential and it's possible to make any record private, so that it can then only be accessed if the password has been entered.

The next development of Almanac's power is the concept of Category: Every type of record you create can have a category, with dozens to choose from and it's possible to add your own.

Then, using the filter option, you can opt to display only certain categories, or exclude specific ones from a list. This means you could display all the vet appointments for the year or display everything except vet appointments and holidays. The options are virtually endless.

You can create extra sections in your Almanac. For example, you can create a new day diary, but with the filters set to show only items related to your car or stamp collection, shows, shop visits and so on.

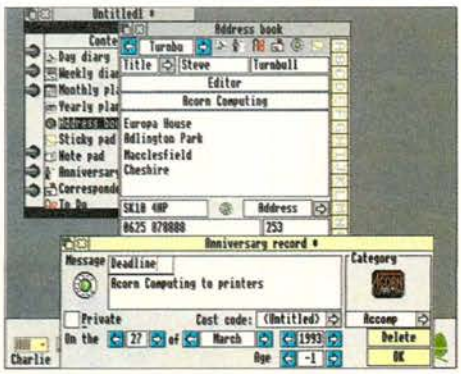
Your day diary reminds you that you have someone's birthday due – click on the links button and you can access the right entry in the Address Book. Did you actually remember to send the card? Check another link which takes you to the correspondence window.



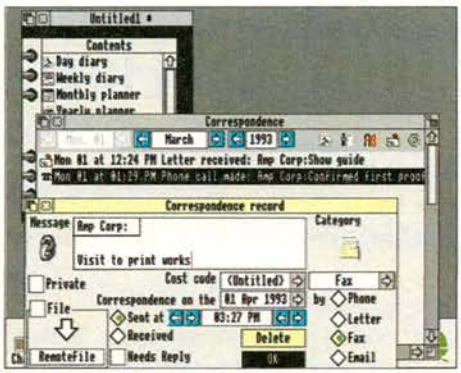
● *An Almanac file – before you open it up to the contents page*

Summing up

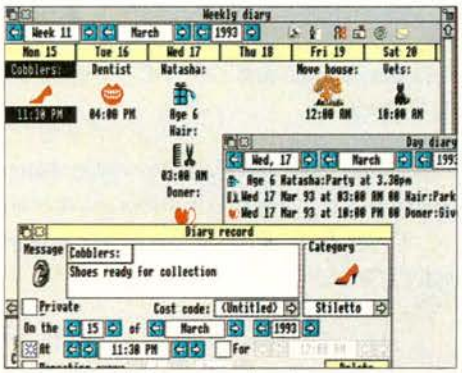
Time management systems usually try to make you work to their way of doing things. Almanac is completely flexible and will let you decide what is displayed. This is one package that will be used constantly.



● *Linking an anniversary file to an address record*



● *Listing all the correspondence related to one company*



● *You can display several sections of an Almanac at once*

Breathe life into History

Ancient Egypt £45.00

Ancient Egypt is an application to support the Supplementary study unit in History at Key Stage 2. From a map of Egypt, children can select areas of interest and explore them. The application is supplied at two reading levels. Discs of the drawfiles used and of scanned sprites are also available for use in other applications.

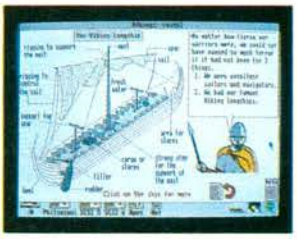
Key Stage 2

Saxon Life £45.00

Saxon Life and Viking Invaders support Key Stage 2 Core Study Unit 1, Invaders and Settlers. This application follows the history of the Saxon settlement and gives extensive details of lifestyle and beliefs. Problem solving exercises in which the children take the part of Saxon settlers are provided on a separate disc.

Key Stage 2

Viking Invaders £45.00



A lively and entertaining account of the impact of the Vikings on British society. Children can follow the history of the time as well as learning about lifestyles, trade, beliefs and the influence that the Vikings still have in modern times. Maps, pictures and text show how Britain formed a part of the much wider Viking world.

Key Stage 2

Castle Life £45.00

Castle Life is aimed at Key Stage 3, in particular CSU 2, Medieval Realms and the Castles and Cathedrals supplementary study unit. The 57 illustrated pages in this application allow children to make their own exploration of a castle, to see it as a living community and to follow its development through time.

Key Stage 3

Cistercian Abbeys £45.00

This application can be used as part of an introduction to Core Study Unit 2: Medieval Realms at Key Stage 3 or as part of a Key Stage 4 GCSE course. 75 linked pages allow exploration and investigation of the buildings of an abbey as well as examining the role of abbeys in society and developments in the mediaeval world.

Key Stage 3 & 4

Local Industry £95.00

This 500 page application explores the history and development of industry in the Sheffield area. It is structured to encourage open ended investigation of real historical data at all ability levels. Pupils can use, analyse and cross reference the materials. This is a whole school resource with relevance across the curriculum.

Key Stage 3 & 4

Battle of the Somme £95.00

(£145 with Laservision Disc)

This unique application makes use of laservision technology (even your old Domesday player!) to deliver a graphic, moving and effective teaching resource. Original film from 1916, interviews with survivors, soldiers' letters, songs, written accounts and a database make this one of the best multimedia applications available.

Key Stage 3 & 4

with Oak Solutions' History Courseware

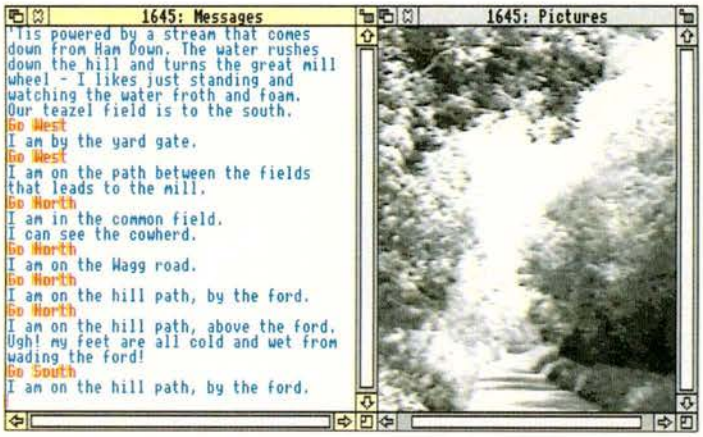
All these applications support the three History Attainment Targets as well as Technology AT 5. Drawfiles, sprites, sound, animations and text files can be easily saved by the user and re-used in a word processor or database. Each application is accompanied by a set of photocopiable worksheets and a booklet of teacher's notes. All applications are supplied with a site licence. Local Industry is designed to be installed on a hard disc. All titles are available on Archimedes, please enquire about availability on PC platform.

Oak Solutions Ltd. Suite 25 Robin Enterprise Centre Leeds Road Idle
West Riding of Yorkshire BD10 9TE Tel: 0274 620423 Fax: 0274 620419

QUALITY RELIABILITY COMPATIBILITY PERFORMANCE

1645: Messages
Go North
I am inside the church.
What can you see?
Lord! 'Tis dark and cool in here after the sunshine outside. 'Twill take a few moments for my eyes to settle down... The altar is at the east end of the church beneath the great window; the pulpit and the lectern stand at the entrance to the chancel. There are a dozen or so rows of pews down the church. At the west end there is another window and beside it is the entrance to the tower. The bell-rope hangs down through a hole in the ceiling.
pull the rope
No, I dursn't ring the bell - 'twould bring half the town running down here!
why
Don't know.
Go South
I am on the south side of the churchyard.
1645: Pictures

● *The Civil War pack takes you back in time with detailed descriptions*


1645: Messages
'Tis powered by a stream that comes down from Ham Down. The water rushes down the hill and turns the great mill wheel - I likes just standing and watching the water froth and foam. Our teazel field is to the south.
Go West
I am by the yard gate.
Go West
I am on the path between the fields that leads to the mill.
Go North
I am in the common field. I can see the cowherd.
Go North
I am on the Wagg road.
Go North
I am on the hill path, by the ford.
Go North
I am on the hill path, above the ford. Ugh! my feet are all cold and wet from wading the ford!
Go South
I am on the hill path, by the ford.
1645: Pictures

● *It's not just a battle you'll explore but early industrialisation*

PRODUCT SPOTLIGHT

Product: Landmarks – Elizabeth 1 and The Civil War
Price: £24.00 each
Supplier: Longman Logotron, 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS.
Tel: 0223 425558

A visit to past times

How do the latest additions to the Landmarks series shape up? Marshal Anderson puts them to the test

THERE are now two more packages in the Logotron Landmark series, again linked to the BBC TV programmes of the same name. They are specifically to be used with the Tudors and Stewarts series to be broadcast this year.

For those of you that haven't yet seen the software it is in the form of an illustrated text adventure into which plain text can be typed to communicate with a character from the past.

Elizabeth I takes us back – with a hey nonny, nonny – to the time of this quite memorable monarch. Here we meet Betsy, a housemaid in the manor of Sutton D'Evercy where they are preparing for a visit from the Queen.

There's plenty to see as you explore the manor both inside and out with 31 illustrations. Betsy describes things in great detail and has plenty of answers but the size of the environment created seems small in comparison to some of the others in the series, though it is more detailed.

As with the previous programs this runs in *real time* and various characters move around the manor as time passes. This is nice and helps the sense of place. The cook is certainly busy and at something different every time you meet her. But the specific events that characterised some of the other packages are missing – or at least we didn't find them.

Betsy doesn't seem to have quite the *voice* of some of our previous travelling companions – for a 12 year old she takes things quite seriously. Certainly the package gives you a nice word picture of the manor, and Betsy will answer questions about her own life. But overall this one lacks any real excitement.

The Civil War introduces us to John, a 10 year old with an extremely distinctive *voice* and from the start he's more believable than Betsy – things interest or bore him and he has opinions.

It doesn't take long to realise that village life has been disrupted by the war and John is willing to give you a potted history of it. By the way, John is a royalist and you had better be too or he won't talk to you.

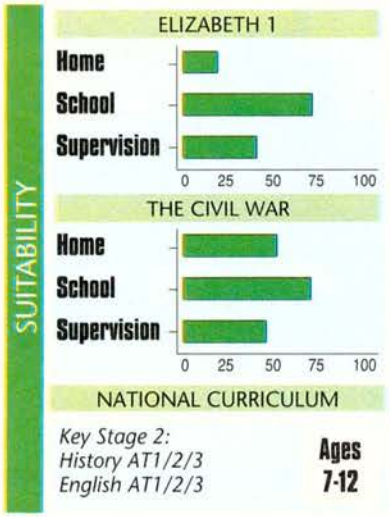
Here there's a real sense of place and time with loads of colourful characters to meet. There's also a feeling of foreboding with the rumours of battle to come and, indeed, it does come on the second day. John can sneak away from the house and get up to the battle field where he will give you an excellent account of the battle as it proceeds, though he's not too comfortable about staying there.

Summing up

If you've used the previous packages and liked them you'll certainly enjoy talking to John. If you couldn't get on with them there's nothing here that will change you're mind.

Of this pair, The Civil War holds the most interest as Betsy is too much like a talking text book. As with all those in the series backup material is provided in the form of teachers' and pupils' books. The pupils' books really are essential as there are no specific tasks in the software for the children to complete – they need the direction.

If you are using the TV programmes, The Civil War is a must, Elizabeth I purely optional. On their own you need to think quite carefully about these packages. They might form the basis for a history project but their lack of direction and the real-time aspect make them difficult to organise in a classroom. Interested parents might think seriously about The Civil War for home use but you'd do better buying them a book for Elizabeth I.



Marshall Anderson gained an Honours Degree in Education at Matlock College in 1979 and in 1982 he moved to a school in Milton Keynes and wrote an adventure based on Stig of the Dump which was later marketed by Sherston Software. He also continues to write software and teaches part time as well as running freelance INSET days.

The fascination o

Rog Frost has taught in Wiltshire comprehensive schools for more than 20 years. His present post is Information Technology Co-ordinator, in a school for pupils aged 11-16.

PRODUCT SPOTLIGHT

Product: Noot
Price: £45
Supplier: 4Mation, 14 Castle Park Road, Whaddon Valley, Barnstaple, Devon EX32 8PA.
Tel: 0271 25353

NOOT is a strange name for an unusual package that claims to be an animation program slanted towards education with musical capabilities thrown in.

The first thing to comment on is the collection of disks – six in all – but don't be put off.

Disk one contains the program with disks two to six containing ready-made files. A further optional disk holds a library of compressed drawfiles which can be used when creating other applications.

Let's start with the ready-made files which give an indication of the capabilities of the program and also offer some breadth of curriculum use.

Dweep and Dweek are two *cuddly* creatures who perform simple Podd-like tasks.

Dweek goes in for whole body actions while for Dweep the action concentrates on facial expressions. As we would all expect, the graphics are good, the animations smooth and the entire program can run to the accompaniment of a Tracker music file. These two programs are most suited to the lower age ranges – infant and junior.

Disk four contains a farm file. Again the format is similar to Dweep and Dweek with appropriate words rewarded with pictures and animations. Here though, the words used are nouns rather than verbs but this application is still aimed firmly at young users – though a group of secondary-aged pupils loved the animations.

I could criticise Farm for some of the graphics. Some, like the donkey, are cartoon-like and great fun while others, such as the goose, are detailed and accurate.

But what happened to the sheep? 4Mation have certainly devised a new, mutant breed which has yet to find its way into my own small flock.

Playroom

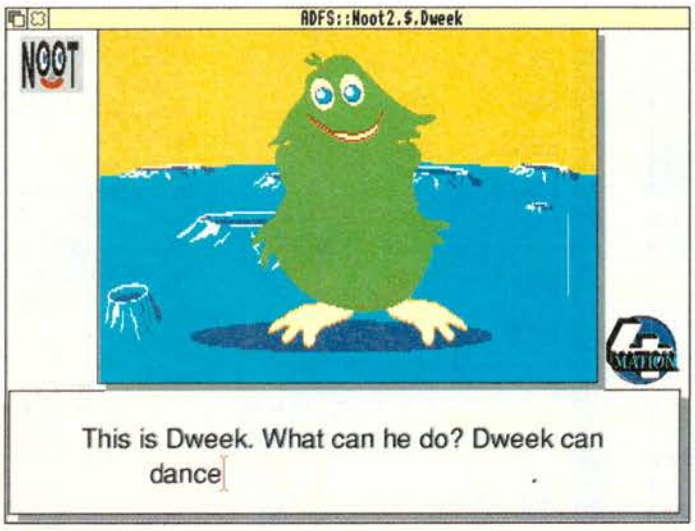
Disk five introduces another file aimed at youngsters. The Playroom is probably the simplest file showing pictures to match the words that need to be typed in. Successful words persuade the Teddy or Doll to dance and the train or bus to go on journeys. Also on disk five is How it Works. This file is aimed more at Key Stages 2-4 animating the working principles of everyday objects. If you've ever baffled about how a zip or an aerosol spray work, this package has the answer.

The final file is called Power, with animations for most types of engine from steam and petrol four stroke to a turbofan jet. Great though these files are they only show half of Noot's potential.

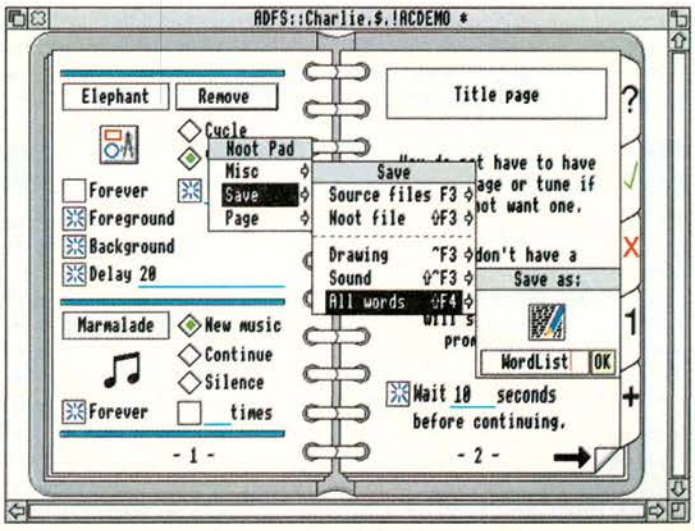
For the full power of this package you need to create your own files. There is a small but excellent manual and the first step is to load a separate program called Nootpad. This gives a display of a spiral bound notepad which lets you drag drawfiles, animations or Tracker files into its pages.

The first two pages are set up for the titles, followed by the main index or key page. The contents dragged on to these will be displayed while the program awaits an input from the user. More pages follow for dealing with words which the program knows and those which it doesn't. The final pages – as many as are needed – contain the words the program is to recognise and what to do about them.

A clever, and most welcome, facility is automatic altering of any wording on



● *Dweep and Dweek are two aliens with a range of interesting moves*



● *The Notepad provides a simple and flexible way to design applications*

f animation

Will Noot become another computer classic? Rog Frost investigates

screen to ensure correct spelling and grammar.

This is an extremely effective way of putting together an on-screen learning package. And of course, the possibilities are endless. Any age group and any curriculum area can benefit from a quick dose of animated display.

The hard part for the non-artist is creating your own images. But, Draw, Vector, smArt files and clip art can all be used effectively. Especially as animations are made by stacking up a set of pictures in Draw which Noot puts together. It takes some time to become proficient but with a little practice it becomes easy.

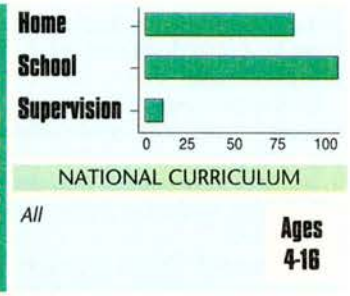
Incidentally, Noot allows the speed and direction of animations to be altered and has a simple technique for managing foregrounds and backgrounds.

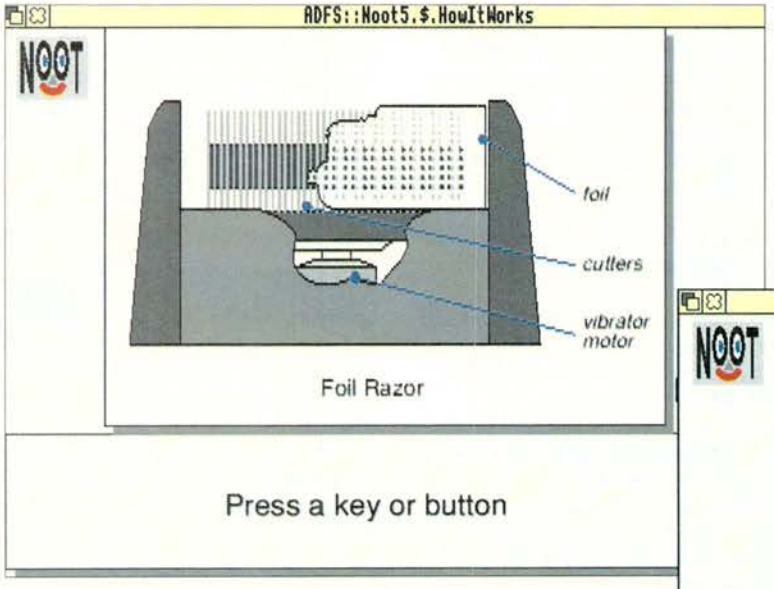
Tracker music files are readily available too and 4Mation provide a dozen of them to start with but they can be obtained in huge numbers at bargain prices from the public domain libraries.

Summing up

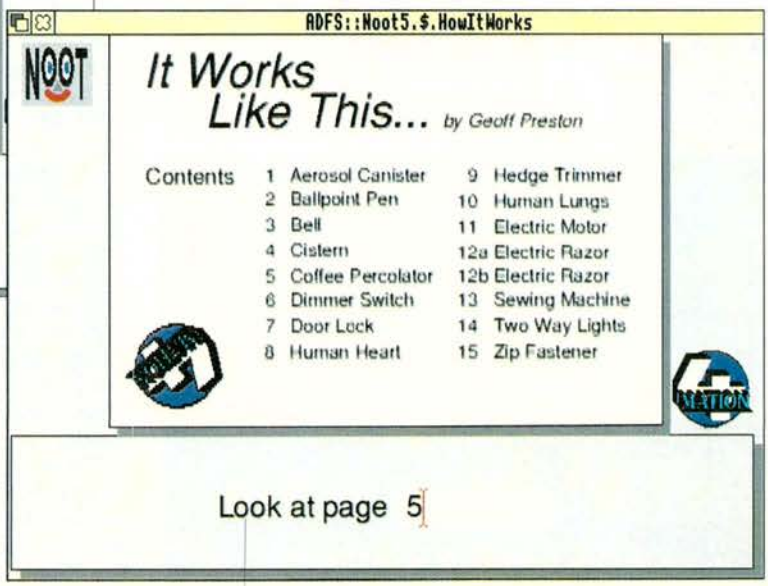
Noot oozes quality from every pore. There has clearly been a determination to make the product easy for adults to set up and scrupulously correct for youngsters. It all works to perfection on my own fairly lowly A3000 with the old ARM2 processor and the older operating system. And it all functions just that bit faster on an A5000.

One sad thing to report. 4Mation have dropped their old free site licence scheme. If you buy a single use copy then you won't be able to copy the disk for use on all computers in one building. It's a shame, but I suppose it is understandable. Having said that, a site licence, at only £90, is a bargain.





● *Being able to see how everyday objects work is easy to understand*



● *Nootpad allows you to set up a title screen which doubles as an index but can still include animations*

Prehistoric prospecting

Frank Jukes goes back to a time when giants ruled the world

Frank Jukes took his qualifications into teaching science in secondary schools but changed to the primary sector.

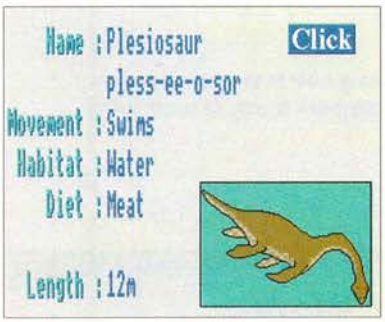
He has been deputy head for 12 years and is Information Technology and Science Coordinator responsible for budgetary control.

WHAT a wonderful way to introduce young children to databases. Pip Investigates Dinosaurs from Northern Micromedia is *a database adventure for Key Stage 1 pupils* and is well worth a close look.

Containing records of just 18 dinosaurs the database isn't over long and so no one just starting out should feel overwhelmed by its size. The amount of information held on each dinosaur is limited, too, and is relevant to the kind of work children at this stage would undertake.

Each record contains details of the dinosaur's name, with a guide to how it should be pronounced – grateful thanks, its length in metres and its diet, along with habitat, method of getting about and a picture.

Unfortunately there is no facility for adding more dinosaurs to be added to the database which is a pity as it would be helpful for it to grow alongside the children's confidence and interest.



● *The database is simple to use and informative*

With plenty of on-screen prompts, it wasn't long before I could use the program to search for dinosaurs of particular lengths or with specific personal habits like a fondness for eating insects or living in deserts.

In large clear type I was told that Pip had gone to an island where Vedra lived and while there he had been coerced into helping find Vedra's dinosaur relatives. Solutions to seven clues were needed to help find Vedra's ancestor.

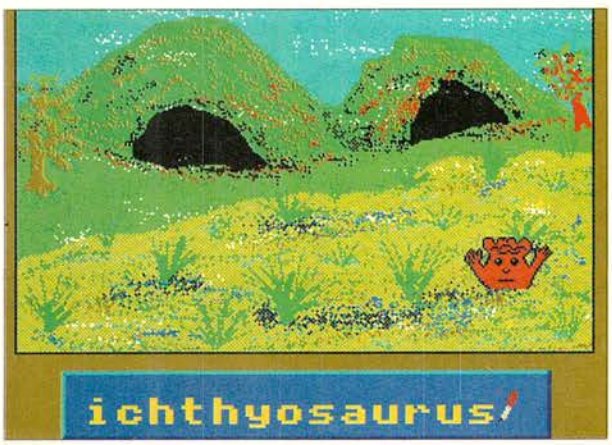
While the language used here was quite well controlled, I think that some children at Key Stage 1 will need some help in reading and understanding what is required of them.

Another area where some children would almost certainly need help would be in spelling the names of the dinosaurs as clues were solved. Solving each clue involved a brief search of the database with a request to find a dinosaur with a particular attribute.

Dinosaurs that moved in a prescribed way or which were above or below a certain size were among those which had to be found and named. And naming was difficult – a piece of paper and a pencil and then great care on the keyboard, was essential.

Two other problems also became apparent but they didn't spoil the program too much. The first was to do with clicking to make choices when, from time to time, the program seemed to skip a screen as though I had clicked twice. I'm sure I hadn't but I could never predict when the problem would next appear.

The second problem was the lack of an escape route from the adventure. One was provided from the database but it failed to restore the default colours to the Desktop – naughty. There was no civilised way of retreating from Vedra, but that was what the adventure was about I suppose.



● *A brave new world for Pip but will this dinosaur be friend or foe*

PRODUCT SPOTLIGHT

Product: Pip Investigates Dinosaurs
Price: £27.50
Supplier: Northern Micromedia, Resources Centre, Coach Lane Campus, Newcastle upon Tyne NE7 7XA.
Tel 091-270 0424

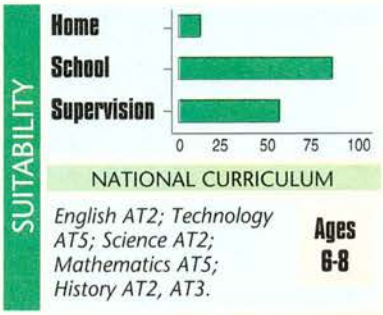
● *Choose between Pip-biting bugs or an insect-eating dinosaur*

In addition to the two program disks the pack contained a set of photocopiable sheets. There were eight work cards to provide a structured introduction to the database and how to extract information from it along with a wordsearch, a crossword, a simple board type game and a collection of large, clear, line drawings featuring each of the dinosaurs to be found in the database.

These support materials were, on the whole, adequate but I would have preferred to have seen more encouragement to become involved in activities such as personal research away from the computer.

Summing up

Pip Investigates Dinosaurs provides an excellent introduction to databases. The subject is one that appeals and the implementation is simple and uncomplicated. With the extra motivation provided by the adventure few children will fail to want to explore. My only real regret is that it is not possible to add more dinosaurs as the need or opportunity arises.

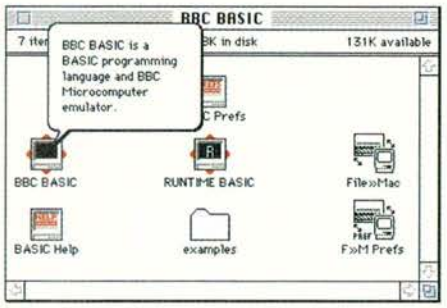


BBC BASIC Version 3

Programming language and Emulator for the Apple™ Macintosh™

Combines the power of the Macintosh ...

BBC BASIC 3 takes advantage of the advanced features of the Macintosh, and System 7, to provide an ideal environment in which to develop, test, and run your BASIC programs.

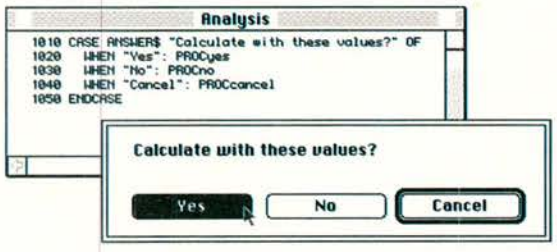


Balloon help provides instant information about the menus and dialogue-box options.

Save Graphics option saves the BBC BASIC graphics screen as a PICT file that can be loaded into other programs.

Runtime BASIC utility converts your BASIC programs into stand-alone double-clickable Macintosh applications.

Macintosh-style interactive editor provides a scrolling view of program listings with convenient cursor or mouse editing. You can work with any font available on your system and you can display keywords highlighted in bold for easy reference.



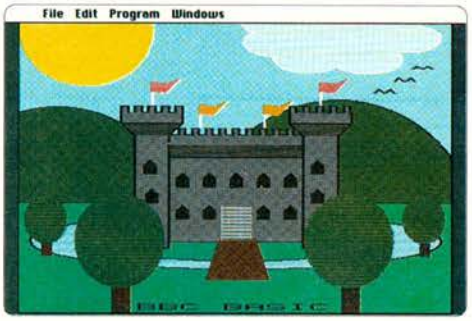
Macintosh Toolbox interface allows you to define your own menus, dialogue boxes, and scrolling lists using convenient BASIC keywords, and use the standard file dialogues for opening and saving data files.

Dynamic tracing and debugging lets you run or step through a program, highlighting each statement as it is executed, and you can display the values of any variables or expressions.

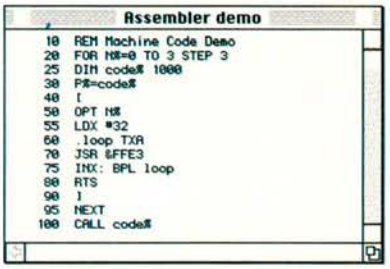
Comprehensive help system gives you instant information on keywords and operators, without interrupting what you are doing.

...with the best of the BBC Microcomputer:

BBC BASIC for the Macintosh gives you access to the foremost educational programming language in the UK, with the ability to run many programs originally developed for the BBC Microcomputer.



Emulates BBC Microcomputer graphics and screen modes, including Teletext. Work in full colour on an LC or Macintosh II, or grey shades on a monochrome Macintosh.



Built-in assembler and 6502 machine-code interpreter allows you to compile and run 6502 assembler programs, or machine code which you have loaded in directly.

Full emulation of the BBC Microcomputer Operating System including all the standard system calls and vectors, OSBYTE, OSWORD, *FX calls, VDU codes, function keys, sound, and DFS/ADFS commands.

Includes File»Mac transfer utility to transfer programs and data files to or from an Acorn Archimedes or BBC Microcomputer.

HUMAN▼COMPUTER
INTERFACE · LIMITED

Human-Computer Interface Limited,
FREEPOST, Cambridge, CB1 1BR
(no stamp required if posted in UK)

Telephone: (0223) 314934. Fax: (0223) 462562

APPLE AND MACINTOSH ARE TRADEMARKS OF APPLE COMPUTER, INC. ACORN AND ARCHIMEDES ARE TRADEMARKS OF ACORN COMPUTER LTD.

The intelligent interf

ONCE they have bought a computer the majority of people start looking around for a printer. Your needs – current and potential – will help you decide between dot matrix, ink/bubble jet, laser printer, direct or plotter.

One crucial point is that of fonts, in the Acorn world the number of fonts a printer has is irrelevant because Acorn machines always print in graphics mode. The fonts you can print are what's on the machine not what's in the printer.

The only qualification to this is where you are printing to a PostScript printer, and nowadays your Acorn printer driver software downloads the font if the printer doesn't have it. We'll be dealing with !Fonts and !System next time.

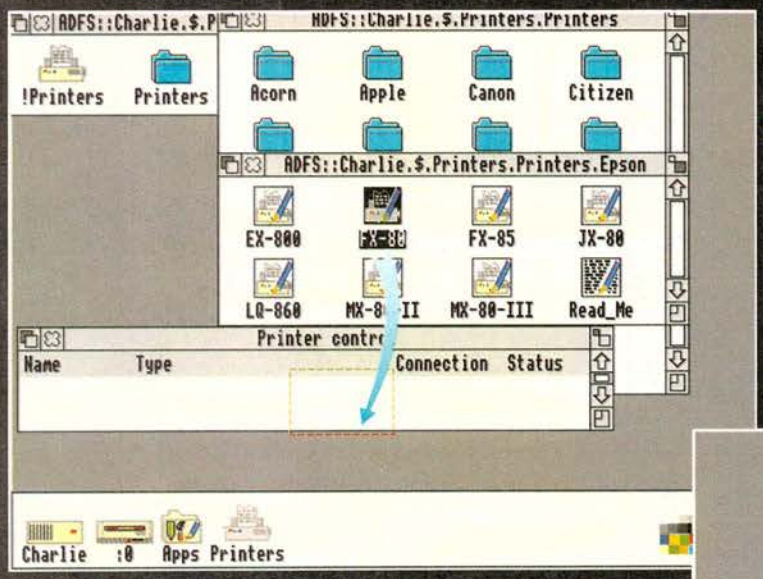
What are printer drivers?

In simple terms printer drivers provide a standard interface between the applications you want to print from and the printer itself.

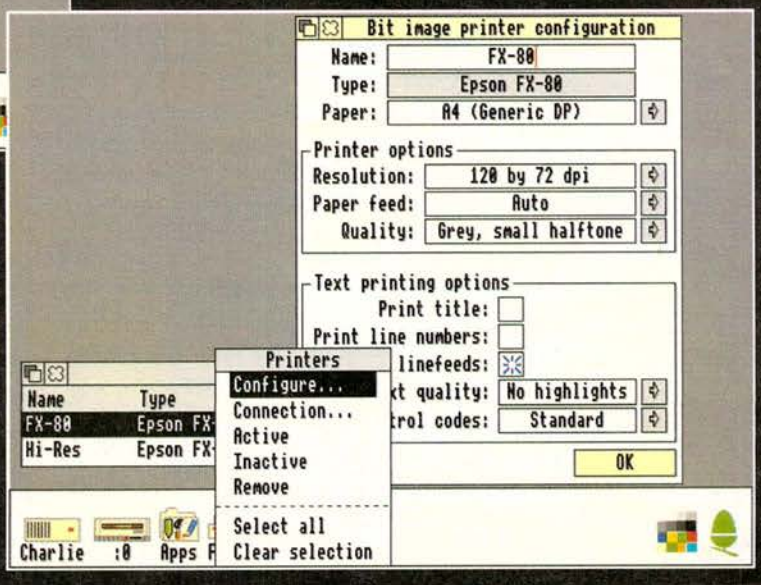
This means that an application doesn't need to know anything about the printer hardware as the driver converts what the application wants to print into the correct instructions for the printer. If you change printer all you have to do is change the driver and all the applications will work in the same way.

On Risc OS 2 machines you load a driver by double-clicking the correct type for your printer: Dot matrix, laser jet, PostScript, Integrex and so on. These drivers work differently than those on Risc OS 3 but can still be used on the new machines.

If you have any topic you'd like to see covered please write to *Newcomers, Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.*



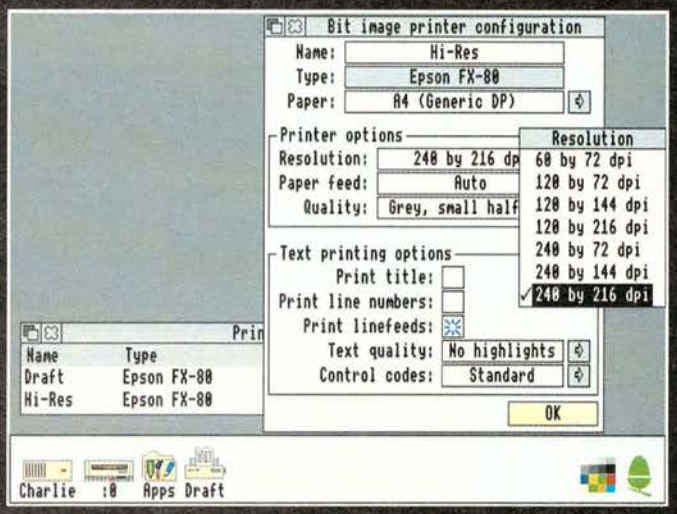
1 You'll need !Printers and the Printers folder. One is on Applications Disk 1, the other on Apps 2. So put them both on one – either on a floppy or on your hard disk. Double-click on !Printers and click on the iconbar menu to bring up the Printer Control window. Open the Printers directory and subdirectories until you find the file for your type of printer, drag it into the Printer Control window.



2 You can drag the same file again and set each to two different resolutions – one for draft printing and one for high resolution work. This is done in via the Configure option from the Control window menu.

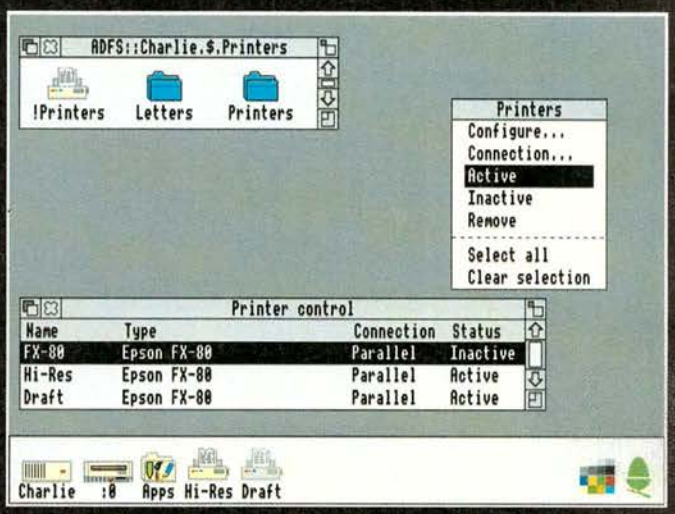
ce

Pam Turnbull continues her series on potential problem areas with a look at printer drivers

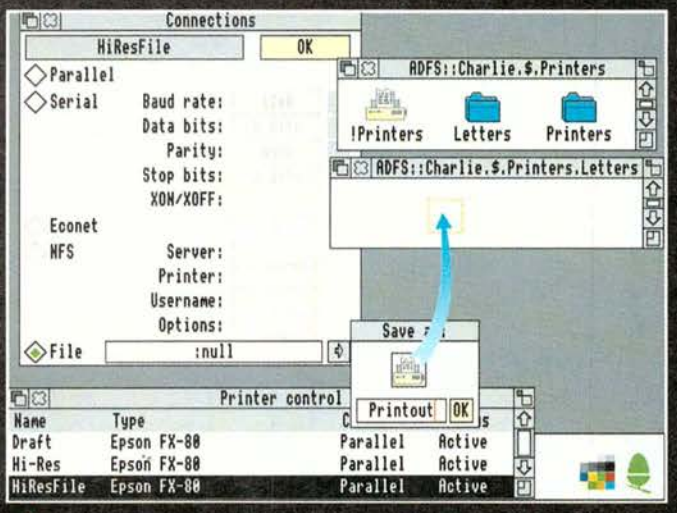


3 While you are configuring the resolution there are other options to experiment with and you can change the name of this configuration to help you remember which is which.

A useful trick in the Risc OS 3 printer driver setup is that it makes background printing easy. Start by creating a directory on the same disk as the printer driver, for convenience, and leave it visible on screen. Call it Letters for now.

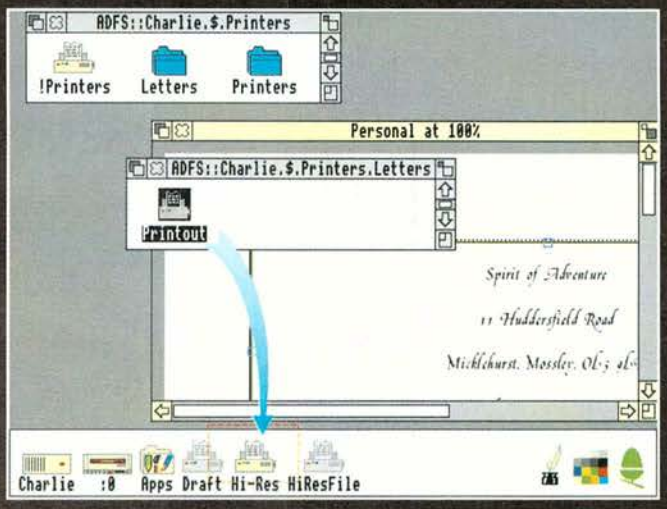


4 Load the FX-80 file a third time and make all the printers active via the menu options. They now all appear on the iconbar and you can choose the one you want by clicking it on the icon bar or in the Printer Control window. Call the third FX-80 file HiResFile via the Configure window file then open the Connections window.

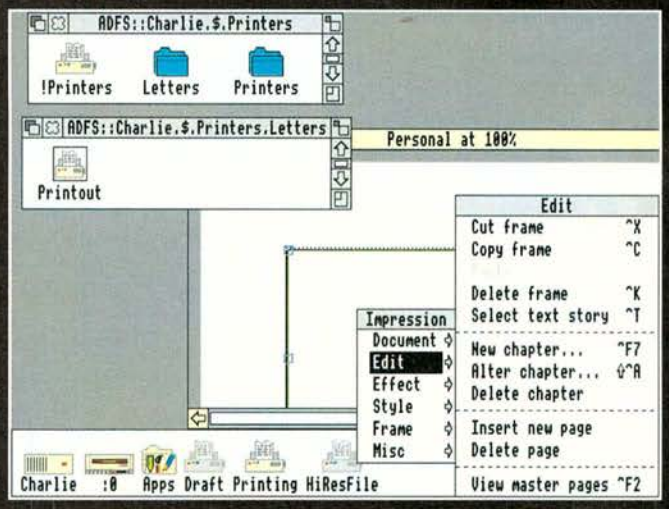


5 Click on the To file box highlighting null:, and click the arrow to bring up a save box. Drag this save icon – renaming it if you want – into the open Letters directory. Remember to click OK after you've done it. A file will appear in the Letters directory.

6 Load the application you want to print from. Make sure HiResFile is highlighted on the iconbar and print in the usual way. This is will happen much faster than if sent straight to the printer.



7 Now drag the PrintOut – or whatever other name you gave it – icon on to one of the driver icons. The file will be printed in the background.

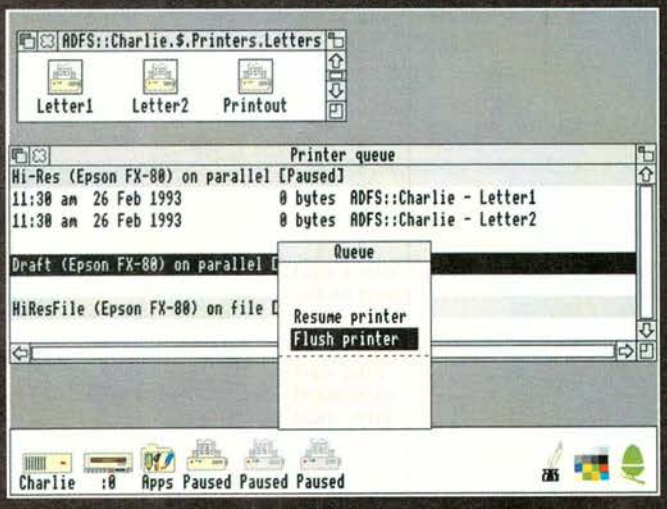


8 You can go back to your application or load something else, while the printer produces your work. Each time you print to the HiResFile driver you'll overwrite the previous PrintOut file.

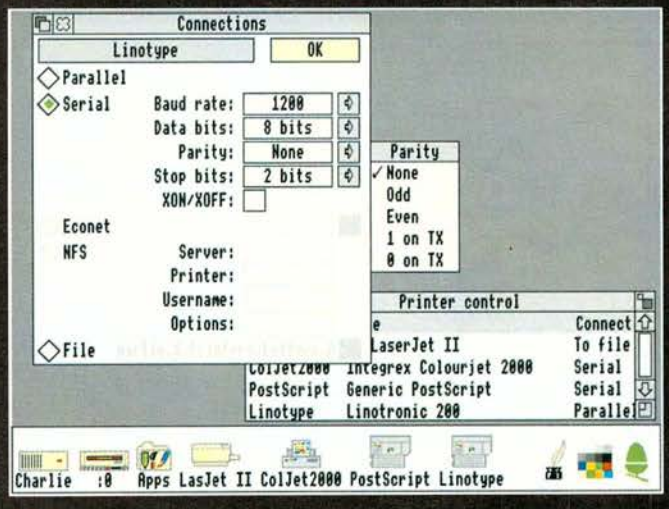
9 If you have several documents which you want to print one after another, the Risc OS printer drivers provide queueing. To see this, click Menu on one of the iconbar icons and select Queue Control. Print all your documents to separately named files then drag from the Letters directory to the printer that will produce them. You can use the queue pause facility to see what's going on.

Some printers require additional drivers. For example, to access the colour option of the Hewlett-Packard DeskJet 500C requires a commercial driver, versions of which are available from Ace Computing (0954 211760) or Risc Developments (0727 40303). Whereas for people with Canon bubblejets the Computer Concepts (0442 63933) Turbo Drivers are invaluable.

If in doubt check with an Acorn dealer or one of the three companies above. Just drag the driver into the directory and the above principles are true of all Risc OS 3 drivers and printers. But whichever printer you use, remember to save the print options so that it all starts up automatically.



10 You can pause and resume printing whenever you want on one or more of the printers and flush them if you change your mind.



11 We have been assuming that your printer is connected to the printer (parallel) socket at the back of your computer which is the most usual case. However, printers can be accessed on networks, through the serial port, or directly as with LaserDirect-type models. All you need to do is click the appropriate box in the Connections window.

KEYSTROKE — The most powerful utility available for any Archimedes computer to date. This professionally designed software is actually capable of controlling other RiscOS programs! You can add key combinations which will cut down on any repetitive desktop mouse clicks. KEYSTROKE performs multiple icon clicks, menu selections, runs other applications and can even be used as an insert text macro utility. KEYSTROKE can enhance programs like *Impression*, *Ovation*, *Vector*, etc. KEYSTROKE cuts down on wasted repetitive actions and therefore saves time and money. There has never been such a program like this before!

KEYSTROKE has been extensively tested on all the Acorn Archimedes (RiscOS 2/3.1) – A310 to the A5000 & A4 Portable.

KEYSTROKE is currently available for £29.95 fully inclusive. (A reasonably priced site licence is also available). Cheques, etc to be made payable to QUANTUM SOFTWARE.

TEL: 0506 411162

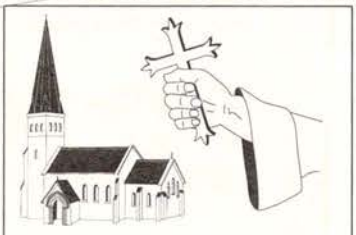
Or write to : Quantum Software, 35 Pinewood Park, Livingston, EH54 8NN for more information on this truly original utility!

Impression Resource Disc

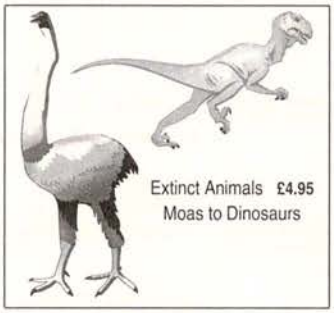
With over a 100 borders, a range of useful clip art and a selection of hints and tips files. **£7.95**

The Impression Junior Resource Disc as above with working borders. **£7.95**

NEW Ovation Resource Disc - contains extra borders, clip art, hints & tips etc. **£8.95**



Parish Magazine - 3 discs of Draw files, and 1 disc of King James (AV) New Testament text files **£16.98**



Extinct Animals **£4.95**
Moas to Dinosaurs

Some of the 50 + Clip Art Collections

Home Publisher clip art (Draw)	£4.95
Europe Maps colour (Draw/compressed)	£4.95
World Maps (Draw/compressed)	£4.95
UK Maps (Draw/compressed)	£4.95
Computer Technology (Draw)	£4.95
Ships & Yachts (Draw)	£4.95
Steam Trains (Draw)	£4.95
Columbus (Draw/Paint)	£4.95
Extinct Animals (Draw/Paint)	£4.95
Houses of the World (Draw)	£4.95
Animals of the World (Draw/Paint)	£4.95
Civil Aircraft silhouettes	£4.95

Ready to run, fully illustrated ClearView hypertext files, with free copy of ClearView

EuroFactfile for the New Europe	£6.95
Scientists & Inventors 300+ biographies	£8.95
Christopher Columbus' first voyage	£6.95
National Parks (for key stage 2)	£8.95
ClearView Advanced version NEW PRICE	£25.50

"Can be used by anybody who can click a mouse button" - September 1992 Archive Magazine

Fonts

Griffin - script font + free decorative alphabet **£8.47**

BOXI - automatically gives boxed text **£8.47**

Over 1800 clip art files now available - for A3000/A3010/A3020/A4000/A5000 & all Archimedes machines

Send £1 for the Auto-Catalogue and ClearView/Sample disc (free with order)

Add VAT at 17.5% and £1 postage to all orders. School order forms accepted.

DEC_DATA

Access VISA

Dep AC5, PO Box 97, Exeter, EX4 4YA

Phone/Fax 0392 221702

Acorn COMPUTING

WARNING

Acorn COMPUTING is proving so popular that newsagents are selling out quickly.

We are printing more copies to satisfy the increased demand, but some newsagents may not have increased their order for the magazine.

If you do not see Acorn COMPUTING in your newsagent, please point out to them that you would like to see it stocked. Better still, why not use this order form to reserve your own copy every month!

Acorn COMPUTING

NEWSAGENTS ORDER

Please reserve a copy of Acorn Computing magazine every month until further notice

☐ I will collect
☐ I would like it delivered to my home

Name .....

Address .....

.....

..... Postcode .....

Note to Newsagent: Acorn Computing should be available from your local wholesaler. If not contact the Circulation Department on 0625 878888.

Your RISCOS Compliant Acorn Dealer!

TopicArt

A new form of clip art comprising of single discs containing approximately 50 hand drawn high quality draw format clip art images, each on a single subject. Site and area licences are available, please ring for details.

TopicArt9 - Dinosaurs

Subjects available
1 - General
2 - Transport
3 - Costumes
4 - Entertainment
5 - Bugs 2 Slugs
6 - Road Signs
7 - Sports Equip
8 - Sports Figures
9 - Dinosaurs
10 - Symbols
11 - Tools

£8 + VAT per disc

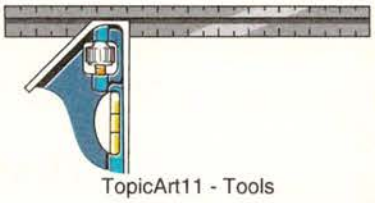
TopicArt7 - Sports Equipment

TopicArt4 Entertainment

11 TopicArt subjects are available now. Please specify when ordering.

TopicArt8 Sports Figures

Buy 4 TopicArt discs get one free



TopicArt11 - Tools

RISCOS 3.1 A300(Complt.)	£63.83
RISCOS 3.1 A3000-A540	£42.70
RISCOS 3.1 A5000	£16.17

Ink Jet Refills

Why throw away empty inkjet cartridges... ...when you can refill them at a fraction of the cost

Colours available include

Cyan, Magenta, Yellow, Black, Red, Green, Blue, Brown

Single Refills (req an orig cartr.)	£6
Twin Refills (req an orig cartr.)	£11
Please specify colour(s) required	
125ml Cleaning Kit	£4
400ml Cleaning Kit	£9
ColourSep software	£15

Can be used with DeskJets, BJ's, JP's + others. Ring for further details.

QuickShow £25+VAT

!QuickShow

Video Titling

&

Slide Show Presentation Has never been easier!

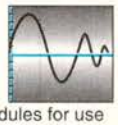
QuickShow is an easy to use slide show presentation and video titling package. It allows you to create a sequence of frames containing text of any colour with drop shadows, outline shadows and rubout boxes using outline fonts. Sprites can also be included in frames and positioned and resized as necessary. Once several screens have been created they can be linked together with the sequencer which allows you to fade each screen out and in with the many fades provided with the package. Completed sequences can be converted to a stand alone application which when run, automatically 'Shows' the sequence without using !QuickShow. 2Mb RAM required.

QuickTile £25+VAT

Up until now it has only been possible to print posters from Draw and Sprite files. Now with QuickTile you can create posters from ANY RISCOS application. The user simply enters the size of the source document, selects the required poster size and then selects PRINT directly from the RISCOS application! QuickTile does the rest, printing each tile with crop marks and references.

QuickSnd£10+VAT

QuickS(ou)nd allows you to load, play, convert & resave existing samples. Armadeus, Tracker, raw data formats are supported. Samples can also be converted into modules for use with the sound system, Maestro, Rhapsody etc or converted into stand alone Utility sample modules which when called, via a star command, loads the utility, plays the sample and then removes itself completely from memory. Special effects which can be applied to samples include Reverse, Echo, Max Vol, alter replay rate and resample at other frequencies. QuickSound is perfect companion to the Oak Sound Recorder.



Hardware, Software & Books (All prices exclude VAT)

Pocket Book/Psion

Acorn Pocket Book	£212
Psion 3 256k	£185
A-Link for either of the above	£51

A3010 Series

A3010 Family Solution	£424
With 2 Free Joysticks	
A3010 Lrng Curve Sys	£680
With Free JoyMaster & Joystick	

A3020 Series

With Free PenDown Plus

A3020 Floppy System	£749

As above less Lng Crv & joystick prts

A3020 60MHD System	£899

As above with 60Mb Hard disc

Add £50 for MultiScan Monitor

A4000 Series

With Free PC Emulator

A4000 Home Off. Sys	£999

2Mb RAM, Floppy Drive, 80Mb hard disc, std mon, EasiWriter2, database.

A4000 80MHD System	£949

Add £50 for MultiScan Monitor

A5000 Series

Free Impression II OR ArtWorks with A5000's

A5000 Lrng Curve Sys	£1445
A5000 2M80HD Sys	£1399
A5000 4M120HD Sys	£1599

Add £200 for Microvitec CubScan 1440 Monitor

Acorn A4 Series

Free TrackBall & SpareBatt

A4 4MHD Portable	£1699

Finance 14.7% APR

Product	Deposit	24payts	Total
A3010LC	79.00	34.50	907.00
A4000HO S	117.83	50.60	1332.23
A4000HO M	123.58	53.14	1398.94
A5000LC	169.00	73.31	1928.44
A4HD60	199.23	86.11	2265.97

Finance is available to anybody over the age of 18, subject to status. Special offers do not apply to finance or the Teachers Acorn Assist scheme.

Monitors

Acorn Standard/MultiScan	£199/£299
Microvitec Cub Scan 1440	**£399**
0.28dp, 40 presets & 3yr Warranty	
Taxan 795A	£469

Hardware Upgrades

ARM3	£175
Canon BJ TurboDrivers (CC)	**£42**
Joystick Interface (all m/c's)	**£32**
JoyMaster (A3010 only)	**£24**
Midi Expansion Card	£65
Scanlight 256	£199
ScanLight Professional New	£549
Vision Digitiser Mono Int	£48/Ext £60
Vision Digitiser Colour Int	£76/Ext £89

RAM Upgrades

A3000 Up to 2/4Mb RAM	£45/£129
A3010 Up to 2Mb RAM	£39
A3020/A4000 Up to 4Mb RAM	£79
A5000 Up to 4Mb RAM	£79
A400 RAM	£35 per Mb

Hard Discs/Flopticals

The following are complete systems.

IDE Archimedes Internal	
120Mb 16ms Cache	£299
200Mb 13ms Cache	£399
520Mb 12ms Cache	£899
IDE A5000 Internal Exchange	
120Mb 16ms Cache	£200
200Mb 13ms Cache	£300
IDE A3000 External	
120Mb 16ms Cache	£379
200Mb 13ms Cache	£479
IDE A3000 Internal Hard Cards	
20Mb	£189
60Mb	£329
SCSI Archimedes Internal	
105Mb 18ms Cache	£429
180Mb 18ms Cache	£599
520Mb 12ms Cache	£999
SCSI A3000 External (with int card)	
105Mb 18ms Cache	£509
180Mb 18ms Cache	£699
SCSI Removable Hard Discs	
44Mb 20ms (incl 1 cartridge)	£499
SCSI 20Mb Flopticals (with card)	
20Mb External Floptical Drive	£499
A5000 Internal Floptical kit	£359
20Mb Floptical diskettes	£20

Printer Consumables

BJ-10/BJ-200 Ink Cartridge	£16/£17
BJ-300 Ink Cartridge	£11
DeskJet500 Mono/Col Cartr.	£21/ £22
Swift24 Mono/Col Ribbon ea.	£5/£15

Printers (Inc Cable/Driver)

Canon BJ-10ex / Turbo	£179/£219
Canon BJ-10 ASF	£49
Canon BJ-200 / Turbo	£299/£329
Canon BJ-300	£339
Canon BJ-300 ASF	£99
Canon BJ-330	£399
HP DeskJet 500	£299
HP DeskJet 550C Colour	£449
HP LaserJet 4 (600dpi)	£1099
Laser Direct HiRes4 / 8	£949 / £1319
Laser Direct HiRes4 Board	£349

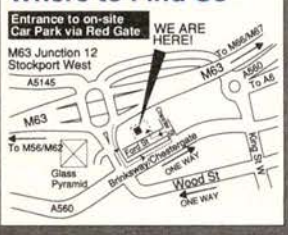
Books (No VAT)

A3000 Technical Guide	£29.95
A540/A5000 Tech Guide (ea)	£65.00
Acorn BBC Basic Guide	£19.95
Acorn RISCOS3 PRM's	£Call
Acorn RISCOS Style Guide	£9.95
Acorn 1st Word+ Manual	£10.00
Acorn DTP Manual	£10.00
Acorn AASM Manual	£25.00
Acorn ANSI C v4 Manual	£25.00
Archi Game Maker's Manual	**£14.95**
Begin's Guide to WIMP Prog	**£14.95**
Dabs Archi Assembly Lang	£14.95
Dabs Archi First Steps	£9.95
Dabs Archi Operating System	£14.95
Dabs Mastering 1st Word+	£13.95
Dabs Basic V Guide	£9.95
DTP on the Archimedes	**£12.95**
First Impressions (inc discs)	**£35.00**
Good Impressions (inc discs)	**£30.00**

Terms EC residents add 17.5%

VAT to all prices except books. Carriage free in UK(except books, RISCOS3.1), elsewhere at cost. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Official orders welcome, chq with order < £25. E & OE

Where to Find Us



Application Software

Arc DFS (Dabs)	£22
ArcTerm 7 (Serial Port)	£62
Arctist (4D)	£20
Armadeus (Clares)	£59
Art Works (CC)	**£129**
CADet (Minerva)	£139
Chameleon 2 (4mation)	£35
Compression (CC)	£35
Desktop C v4 (Acorn)	£180
Desktop Thesaurus (RISC Dev)	£19
Digital Symphony (Oregan)	**£40**
Equasor (CC)	£37
Eureka (Longman)	**£99**
Font FX (DataStore)	£9
Graphbox Pro (Minerva)	£109
Home Accounts (Minerva)	£34
Illusionist (Clares)	£76
Impression II (CC)	£125
Impression Junior (CC)	£75
Impression Bus Supp (CC)	£39
Investigator v2 (Serial Port)	£22
Magpie (Longman)	£49
MasterFile III (RISC)	**£47**
Notate (Longman)	£54
PenDown Plus (Longman)	**£68**
Pin Point (Longman)	£79
Pin Point Junior (Longman)	£23
PipeDream 4 (Colton)	**£129**
PlayBack (RISC)	**£19**
Poster (4Mation)	£75
ProDriver DJ500C/550 (Ace)	**£37**
Render Bender v2 (Clares)	£99
Revelation II (Longman)	£110
Rhapsody v2 (Clares)	£45
Rythmn Bed (Clares)	**£40**
S-Base Personal (Longman)	**£95**
S-Base Developer (Longman)	**£175**
Serenade (Clares)	**£109**
ShapeFX (Data Store)	£9
Snippet (4Mation)	£35
Squirrel Database (Dig Ser)	£120
Superior Speech!	£15
Titler (Clares)	£120
Tracker (Serial Port)	£37
TypeStudio (Beebug)	£43
Vector (4Mation)	**£75**
Vox Box (Clares)	£47
Worra CAD (Oak)	£83
Wordz (Colton)	**£95**

Games Software

Air Supremacy (Superior)	£17
Alderbaran (Evolution)	**£26**
BattleChess (krisalis)	**£22**
Black Angel (4D)	**£26**
Blitz (Arxe)	£17
Boogie Buggy (4D)	£19
Break 147 & Superpool (4D)	£26

Games Software (Contd)

Cataclysm (4D)	£19
Champions (Krisalis)	**£22**
Chess 3D (Micro Power)	£19
Chocks Away Extra Miss(4D)	£15
Chocks 2 Compendium (4D)	£26
Chopper Force (4D)	£22
Chuck Rock (Krisalis)	£19
Cyber Chess (4D)	**£26**
Cyborg (Alpine)	**£19**
Dreadnoughts (Turcan)	£26
Dungeon (4D)	**£26**
Elite (Hybrid)	£32
Enter the Realm (4D)	£19
E-Type Compendium (4D)	£19
Fervour (Clares)	**£19**
Fun School 2/3/4 ea. (5, 5-7, >7)	£18
Galactic Dan (4D)	£19
Games Wizard (Leading Edge)	**£26**
GODS (Krisalis)	£19
Gribbly's Day Out (Coinage)	£19
Guile (Dream)	£22
Heimdall (Krisalis)	**£22**
Hero Quest (Krisalis)	**£22**
Holed Out Compendium (4D)	£19
Ixion (Software 42)	**£19**
James Pond (Krisalis)	£19
Krisalis Collection	**£22**
Last Ninja (Superior)	**£19**
Lemmings (Krisalis)	£19
Lotus Turbo Chall 2 (Krisalis)	£19
Manchester Utd Europe (Krisalis)	£19
MicroDrive 2 (CIS)	£26
MIG 29 Fulcrum (Domark)	**£26**
Nebulus (Krisalis)	£19
Oh No More Lemmings (Kris)	£16
Omar Sharif's Bridge (Krisalis)	**£22**
Pandora's Box (4D)	£19
Paradroid 2000 (Coin-Age)	**£19**
Play It Again Sam 1 (Superior)	**£19**
Populous (Krisalis)	**£22**
Powerband (4D)	£19
Quest for Gold (Krisalis)	£19
Real McCoy 2/3/4 each (4D)	£26
Repton 4 (Superior)	**£18**
Saloon Cars Deluxe (4D)	£26
Sal. Cars Del. Extra Cses (4D)	£15
Sim City (Krisalis)	**£26**
Spheres of Chaos (Matt Black)	**£19**
SWIV (Krisalis)	£19
Technodream (Superior)	**£19**
10/10 Early Essentials <7yr (3R)	**£19**
10/10 English 6-16yrs (3R)	**£19**
10/10 Maths 6-16yrs (3R)	**£19**
Twin World (Cygnus)	£14
Waterloo (Turcan)	£19
X-Fire (4D)	£19

Please call for titles not listed

Desktop Projects Ltd

Tel: 061-474 0778

Authorised Acorn Dealer (Fax No. 061 474 0781)
Unit 2A, Heapriding Business Park, Ford St, Stockport, Cheshire. SK3 0BT

Access VISA SWITCH

Registered Squirrel Dealer

MAY 93

PRODUCT SPOTLIGHT

Product: Midi and Sound Sampler Interface
Price: £94
Product: Desktop Tracker
Price: £69 (Both products £146.88)
Supplier: Leading Edge, Northwood House, North Street, Leeds LS7 3AA.
Tel: 0532 458800

SOUND Special

The musical edge

Ian Waugh takes a close look at Leading Edge's approach to music and Midi

HERE'S a good idea – a Midi interface and a sampler combined and at a very attractive price. How do they do it? By using the Econet port instead of the standard backplane or podule slot.

The hardware consists of a small circuit board which simply plugs into the Econet socket inside your Arc – yes, it's take-the-top-off time. The instructions suggest that if your computer is still under guarantee that you get a dealer to install the board but the process itself is dead easy and although there are no diagrams, the instructions are very clear.

You get a lead with the system. One end plugs into the Econet socket and the other sprouts into three sockets – Midi In, Midi Out and Sample In.

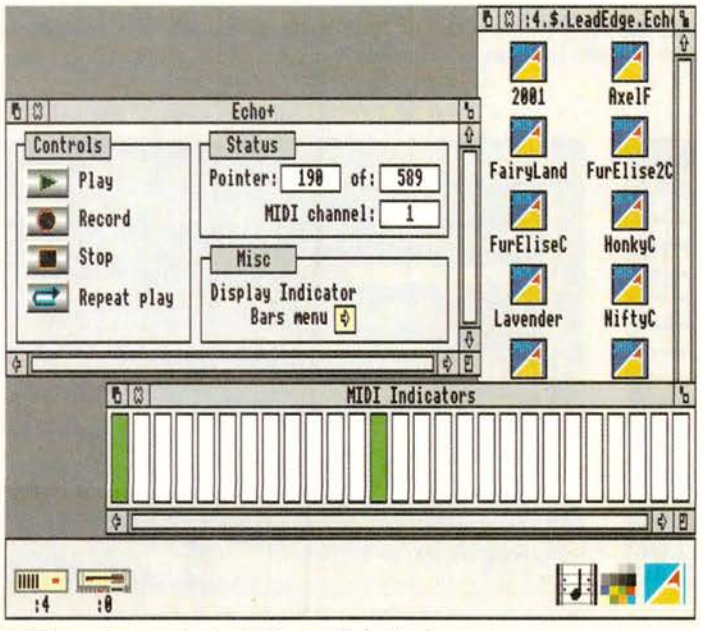
Of course, under normal circumstances the Econet socket does not function as a Midi interface so you have to run some software which kills Econet and redirects the Midi messages to the Econet port.

The interface has been designed to be compatible with Acorn's Midi interface v3.14 and claims to be compatible with all software which uses *legal* Acorn Midi SWI calls. Unfortunately, not all music packages seem to use legal calls.

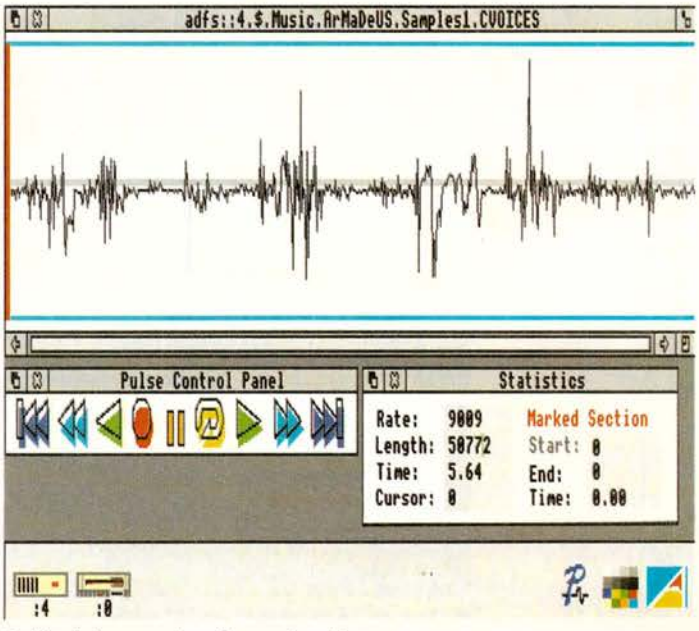
It works with Maestro, Longman's Notate and Clares' Rhapsody. It also works with another Vertical Twist program, Midi Tracker, a rather excellent utility that plays Tracker files over Midi although my version isn't so hot under Risc OS 3.

Oddly, it didn't work with Clares' Rhythm Bed although I believe the designers and Clares are looking into this. It didn't work with Inspiration either as this uses a slightly different Midi handling routine but the software is currently being modified so it will work.

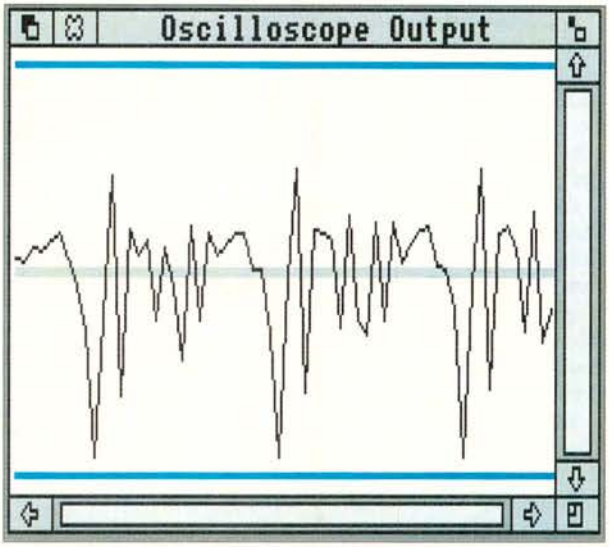
And it didn't work with Studio 24 Plus. This interrogates the podules in turn to see if any Midi interfaces are attached and the Midi routines can't be easily intercepted. The ➤



● *Echo+ is a very basic Midi record/playback program*



● *The Pulse sample software in action*



● *The Oscilloscope display can show samples coming in and samples going out*

➤

developers, Vertical Twist, say that they have asked EMR to support their interface but don't hold your breath as it can take some time.

The interface comes with a very simple Midi recorder called Echo+. It runs in a window but you can't access its menus while it's playing. It only works over one Midi channel, there are no tracks as such, you can't edit the files and it saves the data in its own format.

Several demo files come as standard although some had a propensity for leaving hanging notes – particularly when clicking on the Stop button. Yes, it's basic, but it's only intended as stop gap until you buy a full Midi sequencer.

The Sample In socket on the lead that connects to the Econet interface is a mini-mini jack. You also get a one metre mini-mini jack plug to mini jack stereo plug so you'll have to be very close to your computer. The socket is an odd choice as a phono or full-size jack socket would have been better.

The manual warns that you must only connect it to a headphone or earphone socket otherwise you may damage the unit. This contrasts with units such as Armadeus which have both line level and mic inputs.

More substantial

The sampler software is called Pulse and it's rather more substantial than Echo+. It has the usual display window which shows the sample as a waveform. The Control panel and Statistics windows are detachable and can be placed anywhere on the screen.

You highlight a section of the sample for editing by clicking on the start of the section and dragging to the end. You can change either of the marker positions using the Adjust button.

The Statistics window gives you precise information about the sample size, the marker positions, the sample rate and so on, and you can adjust these directly. You have to set the length of the sample buffer before starting and the program annoyingly resets this after you delete a sample. The sample rate is given in Hz rather than kHz which is normally used.

An Oscilloscope In window helps you set the incoming volume level to get maximum signal without distortion. There's also an Oscilloscope Out which show the sample on playback.

You can sample at rates up to 50kHz. A useful over-sampling function helps improve the quality during recording and an under-sampling routine reduces the size of a sample with a little loss of quality. The Filter can help remove high frequencies – usually noise – before processing to help retain as good a quality as possible.

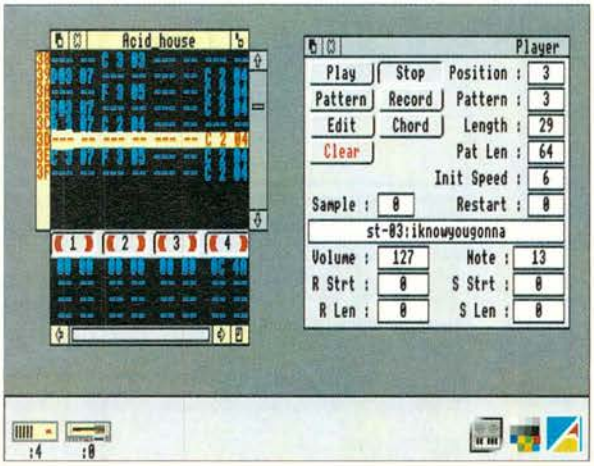
The processing functions include zoom, fade in and out and reverse. You can also convert between signed and unsigned sample

Summing up

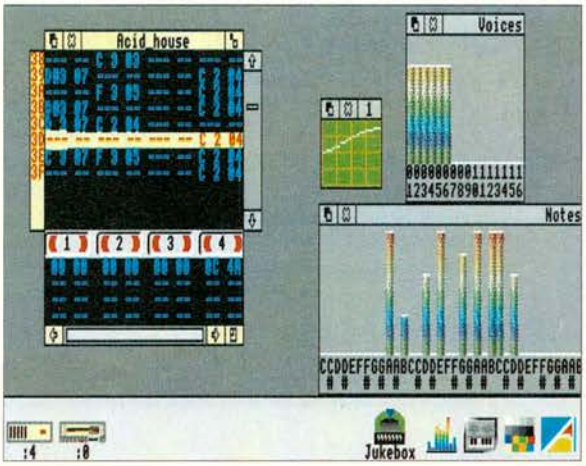
The combined Sampler/Midi interface board is very tempting especially as a stand-alone Midi interface and sampler can cost around £75 each.

However, you must be aware of the Midi compatibility problems and make sure it will work with any program you have, wish to buy or may buy in the future. Unfortunately, the only guarantee for future Midi software compatibility is to use an Acorn interface.

The sampling software isn't as sophisticated as some and you need to be careful what you plug the sampler into. However, careful use of the over- and under-sampling functions and the filter can produce very good samples well-suited to Tracker use.



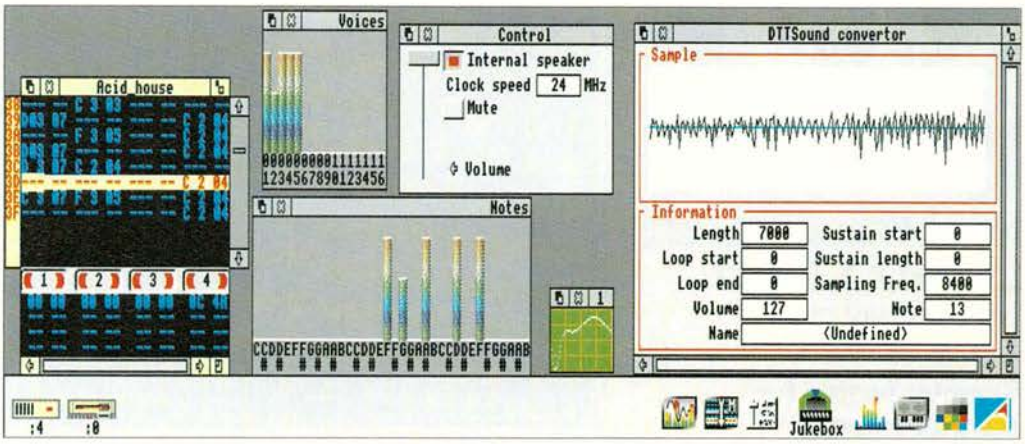
● *Desktop Tracker's Edit and Play windows – this is where the work is done*



● *The Bars and Oscilloscope display programs give you something to watch while listening to some great sounds*

formats. However, there are no cut and paste facilities which is very strange so you can't produce the infamous N-N-N-Nineteen effect, for example, although these functions can be duplicated by a rather circumventuous route.

Output is through the machine's internal speaker and the audio out socket. You can save a sample in Tracker, Armadeus and Module format. There were no demo samples on the disk which is a shame – it's always nice to see what developers can do with their own products.



● *Desktop Tracker going for the Most windows on the desktop at once award*

Desktop Tracker

Tracker programs have acquired something of a cult following over the past few years. They began life on the Amiga but then The Serial Port created a version for the Archimedes. One feature which made it particularly popular is its compatibility with Amiga files and hundreds of Tracker files in PD land are waiting to be played.

Desktop Tracker is the most sophisticated version yet. It has many improvements and enhancements over the earlier versions, not least of which is the fact that it runs under Risc OS.

The package contains several modules each with their own window and function. Although this adds a degree of complexity to the layout and operation, it means you need only use the modules you require at any particular time.

The basic tune production routine goes something like this: You can create up to 256 patterns each consisting of up to 256 events. The patterns can then be linked to produce the final song. A pattern has up to 16 voices which, in DTT terms, would be called a 16-track tune.

You probably know that the Archimedes has eight sound channels so how come DTT can play 16 voices? It does it by clever multiplexing techniques, although it does result in some loss of quality, particularly with unfiltered sounds. If you've removed the filter on your audio out socket it will be more noticeable. Can't win, can you? However, most Tracker tunes seem to use only four tracks including all the demo tunes, except one which uses six.

An event can consist of one note which has an associated sample – you can have up to 63 samples – and up to four effects. This is where the program's hacker origins begin to show. The sample, the effects and effects values must be entered as numbers in hexadecimal format.

The range of effects has been expanded for greater Amiga compatibility. Some control volume and pan position while others control arpeggio, portamento, vibrato, tremolo and phasing.

You enter notes and effects from the keyboard, although if you have a Midi interface – an Acorn one or the Midi/sampler board described above – you can enter notes in step time from a Midi keyboard. I found this much easier.

The program can edit tunes in SoundTracker and Tracker format but not save them as such. Its own files are more compact, saving a 96k Tracker file as 83k while a 154k file went down to 140k.

The program comes with two disks containing lots of samples and you can create your own using Pulse – of course – or virtually any other sampler. The Midi Tracker program mentioned earlier is not going to be updated. Instead, a new version is being written for DTT. Instrumental pieces can sound far better over Midi but you will lose the effectiveness of vocal and non-instrumental samples.

The manual is quite well written with a tutorial in one of the Appendices and the main section of the manual takes you through the program's functions. The program has been updated since it was written and there is a fair size Read.me file on the disk.

Added usefulness

Desktop Tracker includes several utility programs which you can load and use as required.

DTTSound can take samples from a variety of formats and convert them for use with Desktop Tracker. If you don't know the filetype, the program will make a guess. It also contains basic editing facilities to create a sustain section and loop points.

DTTConv converts Desktop Tracker files into Tracker files. You drop the file on to the icon and save it off. It can even save it for you automatically.

DDTBars produces a spectrum analyser display which shows voice and note activity in two separate windows. And you can redesign the bar display in Paint.

DTTScope produces a very, very small window containing an oscilloscope display of a selected voice while DTTContrl lets you adjust the volume and switch the Arc's internal speaker on and off. As you'd expect **DTTJuke** is a DTT file player.

Summing up

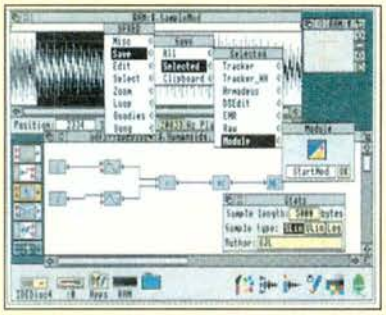
I can't believe that a less numeric approach to music creation would not be easier, especially for anyone with even a smattering of musical knowledge. However, the Tracker format endures.

Desktop Tracker is the best Tracker program to date and, within the format, easy to use. Recommended to Trackers and hackers everywhere.

Cambridge International Software

Suite 2A, Leroy Business Centre
LONDON N1 3QP

Tel: 071 226 3340 Access & Visa Accepted Fax: 071 226 3340



!Sound FX Maker!

Need we say more?
£49.95 inc VAT.
Sampler boards for
!SFXM £39.95

The MusicStation

We have the answer!!
The only complete music solution for the Arc - tailored to your requirements for home or educational

Card-Mania!

£19.95 inc VAT.

SERPENTS!

40 levels of entertainment at a superb price: £19.95 inc VAT

Phone for pices on the full range of Acorn hardware, peripherals, repairs and maintenance. Ask for Nick who will be generous!!
- Special education rates -

C.I.S. is now producing at least one new product a month. We still need help from freelancers. Contact David Raven.

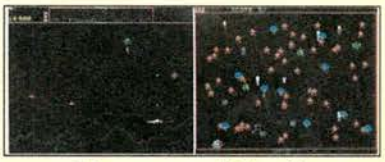
Offers!!

Chequered flag £15.00
FireBall II Xtra.....£10.00

Coming Shortly

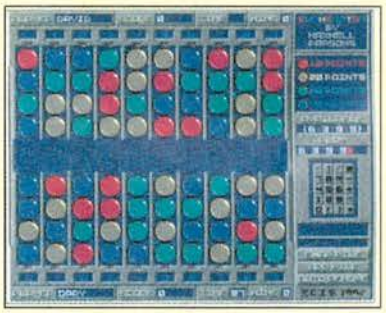
Photopia

Image processing software at a bargain price!



Humanoids & Robotix

Our version of famous arcade games



E-Numix

£19.95 inc VAT.
the ultimate challenge.

Use this voucher now!

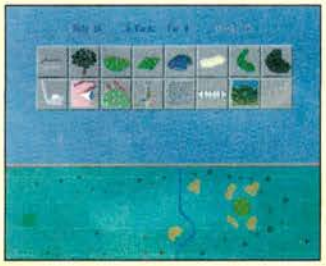
£5 Off
any
Cambridge International Software product

Name: .....
Address: .....
.....
.....
.....
Post Code.....

Please send me further information on your products (tick box) ☐

MicroDrive

The Game:
Seven Courses
£34.95 inc VAT



The Designer:
with examples
£34.9 inc VAT

Tools for the artisan

Ian Waugh takes an in-depth look at a new sample manipulation package

PRODUCT SPOTLIGHT

Product: Sound Engineer
Price: £59
Supplier: EMR, 14 Mount Close, Wickford, Essex SS11 8HG.
Tel: 0702 335747

THE Acorn 32-bit machine's ability to use samples as part of its internal sound process is a very useful and powerful one but we need tools to be able to construct, edit and manipulate samples if we are to make the most of this facility.

Sound Engineer is a sample manipulation program, one of several to hit the market within the last year or so. It can be used with samples from virtually any source although if you want to make your own you will, of course, need a hardware sampler.

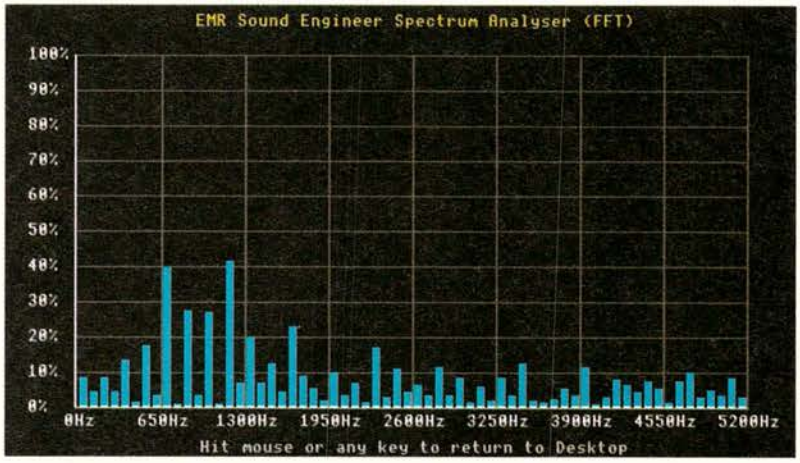
EMR recommend their own Multi Interface, Sampler 8 and the Oak Recorder. Special support for these is built into the program which is good, Clares' Armadeus isn't supported, though EMR are working on it.

The first thing to do is register your software. This is done automatically when you first boot the disk. It marks the software with your name and registration number and should help deter Captain Kidd and his piratical crew.

The samples can play back in stereo so it's a good idea to run the Arc's audio out to a stereo system to get the full effect. Dedicated sound aficionados may know that it's possible to modify the audio output to produce unfiltered sound. Details are available from EMR.

EMR use a different tuning system to Acorn's and there's provision in the program to retune any sample. You can use the retune function to overlay sounds at different pitches and to tune it to musical equipment if you are using it with a Midi keyboard. Up to eight voices can be played at once.

The software has an extensive



● *The spectrum analyser can show the harmonic content of a sample on the fly*

array of menus and windows. The main window is where you record, playback and edit the samples. The horizontal axis indicates the time in seconds and the vertical axis is the waveform amplitude.

Engineer supports traditional copy and pas te functions but it also has a few other goodies. These include echo, randomise, filtering, scaling, pitch adjustment, fading in and out and reversing – superb.

Interpolation is another favourite. It creates a blend from one sample into another although the example, a choir turning into a sax, is a little too extreme to be convincing. Some sample editors use this form of blending to help create a loop point if a natural one is elusive by fading in the end of the loop into the beginning.

A Sound FX menu lets you add white and pink noise – pink noise has fewer high frequencies – and sustain. There's a pitch doubler, several types of fuzz and a flanger. All excellent fodder for the ➤

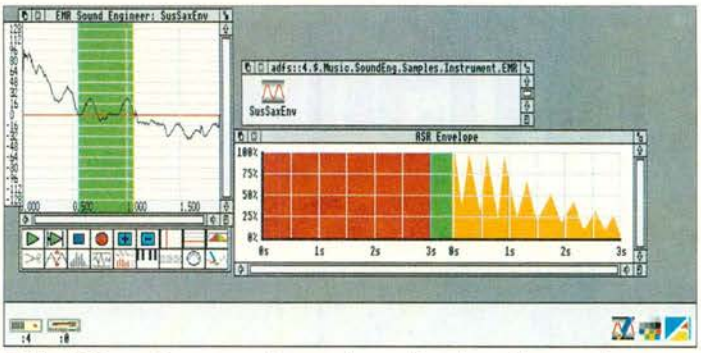
Tools for the job

On the bottom of the main window is the toolbox. This has record – which only works if a sampler is fitted – and playback controls plus several edit tools. These include an expand icon to increase the waveform's amplitude, a zoom function and icons to adjust the horizontal and vertical scales.

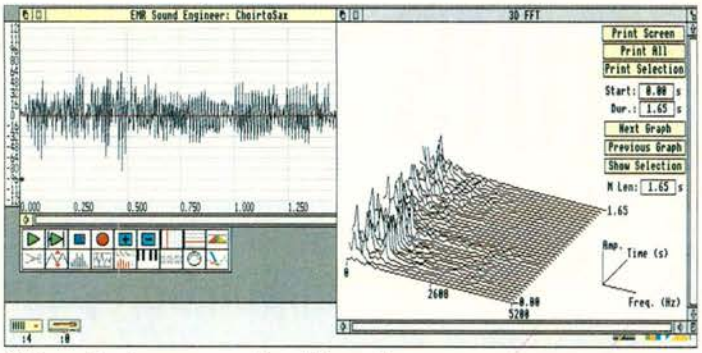
You can call up several other windows from the toolbox including the ASR envelope shaper, a spectrum analyser to analyse incoming signals, and an oscilloscope, also for incoming signals although both these will display the harmonics of a sample while it's playing. There's a harmonic wave generator, a keyboard so you can play the sample at different pitches and a counter window which gives info about the sample's size, looping points and so on.

A Midi icon toggles sample playback via a Midi instrument on and off, and an Edit icon lets you redraw parts of the waveform manually.

There's an Auto Loop point selector which finds not one but six loop points at a time. This works very well and you can change the loops on the fly.



● *The ASR envelope generator can be used to shape the samples*



● *Sound Engineer can produce FFT graphs*

➤

experimenter. There's a handy Undo function although it's two menus deep. It would be more useful in the toolbox.

The printout function can print the sample window and also render the infamous FFT (Fast Fourier Transform) display – the mountain display as it's colloquially known.

The harmonic generation window lets you create waveforms through additive synthesis – the way sounds were created before digital synthesis and sample-base synths came on to the market. You pick a waveform then select the volumes of its harmonics.

It's a good way of learning how complex sounds are constructed – and it's fun. The waveform changes as you alter the harmonics so it's an excellent educational aid.

The more memory you have, the longer the samples you'll be able to play. The manual suggests that 4Mb can give you up to two minutes of music. There's also a Direct Disk Playback function which lets you play a very large sample direct from disk in minimum memory.

Engineer can save the sound in Waveform, Module or Raw data formats. Using EMR's Waveform format retains the envelope which will generally make it more useable.

You can load virtually any sample into the program and a useful function will convert every which way between linear signed, linear unsigned and logarithmic waveforms.

There's also an Atari disk reader – for those who don't have Risc OS 3 – so you can access the many hundreds of samples in ST land, although it simply reads raw data from the disk. There's no option to load individual sample files – a missed opportunity.

The manual refers you to !MultiFS – or Risc OS 3's MultiFS – to load from PC disks although, as many users know, most PC and ST disks are close enough so that any application which can read one format can usually also read the other.

The manual is quite explanatory but starts by telling you what the program can do before it tells you how to do it. I'm afraid this is a pet peeve of mine – one acquired through many years of manual reading. It's not bad but I can't help but wonder how much better it would have been with a good tutorial.

Niggles are mainly to do with the layout – although don't take this too seriously. There are a lot of options and the menus could be a little better arranged. Why have icons and menu items, especially when the items are a level down? Okay, it may be nice to have the choice but initially it makes the program look more complex than it is.

But for all that, the program is not at all difficult to use. Many functions also have keystroke equivalents and that can help speed up use.

Sampling the spirit

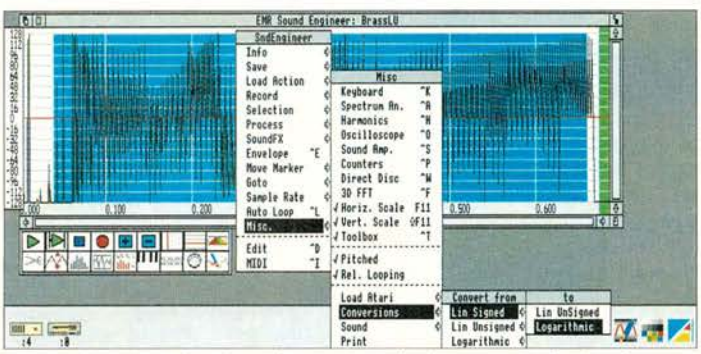
One of the limitations with most computer-based samplers is that they only handle 8-bit samples. This is fine for demos, presentations and for home music use but rather too low quality for professional use, although I have one friend who uses 8-bit computer samples on his demo tapes.

If you want pro quality you have to pay for it otherwise I wouldn't be too concerned with bit rates. Sound Engineer can produce excellent results.

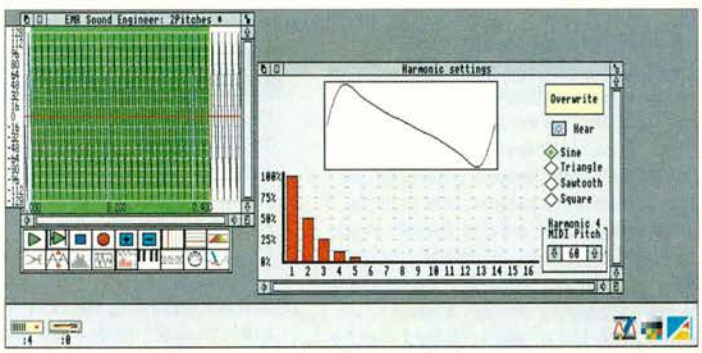
Summing up

Sound Engineer contains an excellent range of tools for anyone experimenting with samples. It has a wider range of edit and processing functions than any other current sample editor.

The ability to convert between sample types and save them in a number of formats – including a module – will prove very useful especially to anyone using samples on a regular basis.



● *Sound Engineer has lots of menus. And sub menus. And sub-sub menus... it also has very useful sample conversion utility*

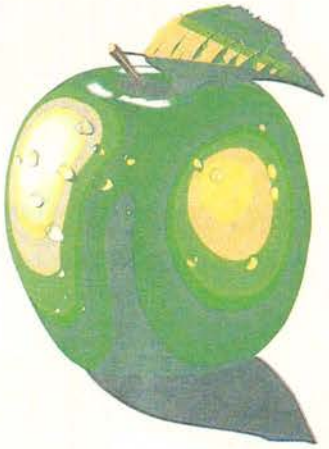


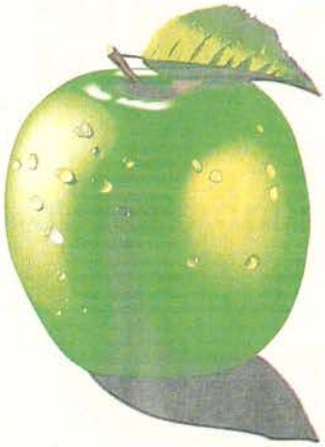
● *The harmonic generator used additive synthesis to construct waveforms. Here sine waves have been added to produce a sawtooth waveform*

What can an Ace ProDriver do for me?

Standard Deskjet 500C Driver

Deskjet 500C ProDriver





Ace Computing

Oak Solutions Ltd.
Suite 25
Robin Enterprise Centre
Leeds Road
Idle
West Riding of Yorkshire
BD10 9TE
Tel: 0274 620423
Fax: 0274 620419

Before **After**

Tempted?

24 bit colour, colour separations, spooling, background printing and quality that speaks for itself, with upgrades starting from only £25.
Whatever your printer, contact Ace – leaders in printing technology on the Archimedes.

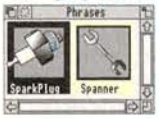
COMPOSE WORLD

Music Exploration On The Acorn RiscOs Range Of Computers.

NEW VERSION V1.6

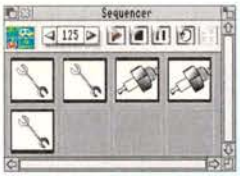
Compose World is a music exploration program designed for all ages.

Phrases of music are represented as pictures and/or words.



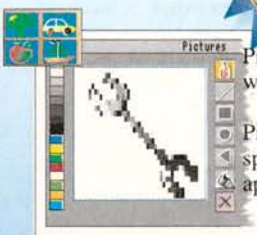
These phrases can be any length and can contain both melody and harmony. The phrases are used as building blocks and can be sequenced in any order or combination.

Compositions are produced by listening to phrases and experimenting with different combinations.



The composition can be played using Archimedes sounds or through a MIDI instrument.

The Compose World disc contains a wide selection of phrase sets which cover different styles, themes and structures.



Pictures can be edited and created with the in-built picture editor.

Pictures can be any Risc-OS sprite, as generated by the !Paint application.

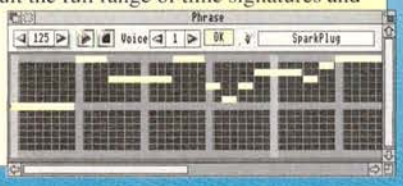
In addition to phrases being given an icon and name, they can also be given a picture to display whilst the particular phrase plays. . .

GETTING Animated

Phrases can be created and edited in Compose World using the in-built editor. The phrase is represented on a grid with full control over pitch, note length and volume. The display can be changed to suit the full range of time signatures and scales, eg. major, minor, microtonal etc.

Special effects can be used to alter the phrase : transpose, stretch, invert etc.

Phrases can be saved and loaded as MIDI files.



ON REVIEW "It won't frighten teachers. There are no notes, just pictures and surely nobody is intimidated by a picture of a banana . . . . . Compose World is just wonderful" !
Alan Bennett : Archimedes World - April 93

£ COMPOSE WORLD
£ 48 +V.A.T.

For further information please send for a free catalogue.

Expressive Software Projects
Holly Tree Cottage, Main Street, Strelley Village, Nottingham. NG8 6PD
(0602) 295019

It's time to compose you

Ian Waugh takes you on a guided tour of Oregan's new cor

PRODUCT SPOTLIGHT

Product: Digital Symphony
Price: £49.95
Supplier: Oregan, 36 Grosvenor Avenue, Streetly, Sutton Coldfield, B74 3PE.
Tel: 021 358 6044

DIGITAL Symphony is essentially a Tracker clone which runs under Risc OS. If you're familiar with Tracker's somewhat arcane – to a musician, at least – arrangement of events, patterns and sequencers, you'll get on fine.

If not, the manual throws you in at the deep end as it gets right down to the nitty gritty – including hexadecimal numbers – on the first page. ProTracker? Not everyone knows that this is an Amiga program. And hey, what about installing it?

The average Acorn user may be okay but the beginner may be wondering if he's not a few chapters short of a full manual. It looks as though the manual was written by one of the programmers or designers – never a good idea.

Perhaps I underestimate the ability of potential buyers but it's better to lead users gently by the hand through the software than to throw a reference guide at them and expect them to be as clever as the programmer.

And while picking on the manual, I may as well complain about the lack of a contents page and a rather insubstantial index.

Down to basics

On the software side Digital Symphony is probably the most complex of the Tracker clones/variants. It has more parameters than you can shake a baton at and hackers will absolutely love it.

On booting, you get two icons on the menu bar – a CD disk and a CD player. Clicking on the CD player can switch the music off or give it priority over any other program which happens to be running.

Two main menus are selectable from the icons – Edit and General. Edit gives you access to the sequencer, pattern editor, pattern list and sample editor windows.

The basic song construction is the same as other Tracker programs –you create patterns from events which are essentially lists of hex numbers and then link them in the sequencer to produce a complete song.

But before you can create a pattern you have to enter some numbers in the pattern list and then enter a pattern into the sequencer. And before you can use the editor, you have to open the sample list and load in some samples. My logic would suggest that you work the other way around and build from patterns to a pattern list and then to a sequence.

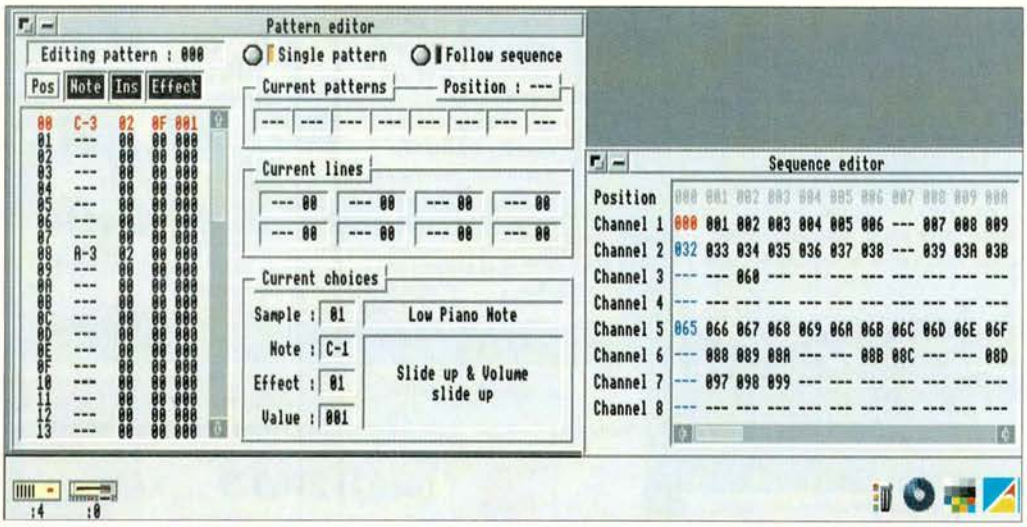
The editor is replete with functions. You can enter notes from the computer or via a Midi keyboard. There are copy, delete, blank, transpose, replace, exchange and customise functions which you can apply to notes, effects and instruments. A score display window also shows notes on the stave although you can't edit them here.

The sequencer lists the patterns horizontally – as opposed to the traditional Tracker vertical display – but it works just as well. You select a pattern in either the pattern window or pattern list window and click it into place in the sequencer.

The sample editor is comprehensive and allows you to add effects to a sample and click on an on-screen keyboard to test various pitches. You can set loops and there's a function to help you find the best loop points, as well as tune parameters and output notes to consecutive sound channels – useful for trying chords.

Samples can be saved in one of eight formats including a packed Symphony format to save space.

The General menu houses a control panel, an inquiry window, a monitor (LED bar display), a



● *Digital Symphony's two main windows – the pattern editor and the sequencer editor*

rself

postion software

preferences window, an effects list, a sample list and an info text window which is a sort of notepad.

The control panel works like a cassette recorder for controlling playback. The inquiry window supplies information about the track such as file and song names, tune length plus voice, quality, memory and instrument information.

In the preferences window you can set volume and stereo positions plus playback criteria such as auto repeat, automatic load and play, and you can toggle the internal speaker on and off. You can also stipulate the filetypes it will recognise – Tracker, Symphony, Module and TeqMusic.

There are techy options you might use with Amiga ProTracker files and with oversized samples, that is one whose loop point is not correctly set.

Other options let you select which window will open when you click on the Symphony icon with the Select or Adjust button. You can also determine which pitches correspond to the Arc's keyboard.

The effects list contains all the Amiga ProTracker effects plus a few extras. Their parameters and functions are listed in the Appendix.

Symphony supports ProTracker, SoundTracker, Tracker and TeqMusic formats plus Maestro and OctaMED with the assistance of a couple of applications.

You can save the music in Symphony, Tracker, ProTracker and Relocatable Module formats. The Symphony format retains all the music data while the others lose a little. You can also save a track as a text dump which contains all the program information.

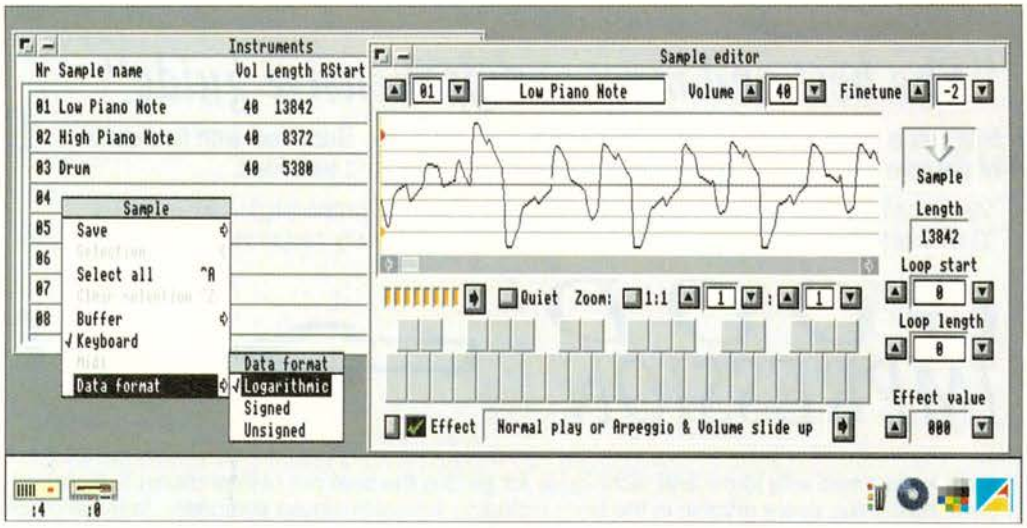
If you save as a Relocatable Module and the file is playing, it will play automatically when loaded. Cute! A Packed Symphony format compresses the file, saving valuable space – a 339k file packed down to 254k.

Although the program uses windows – lots – they are not resizable and you simply can't organise the desktop to suit the work in hand and even in Mode 16, for example, you'll have windows hiding behind windows. The 32-bit machines have a great interface and this is not an improvement.

Although most of the program is mouse driven, many options can still only be performed from the keyboard.

Some parameters have to be typed in, too, whereas a mouse click would be more convenient.

The manual stipulates that if you want to use any music produced with Digital Symphony for commercial purposes you must obtain written permission from Oregan. I acknowledge that the majority of users will use it to create demos but it's not encouraging soundtrack writers to ditch Tracker – or Desktop Tracker – in favour of this program



● *Symphony can hold many samples and add effects to them in the editor*

Summing up

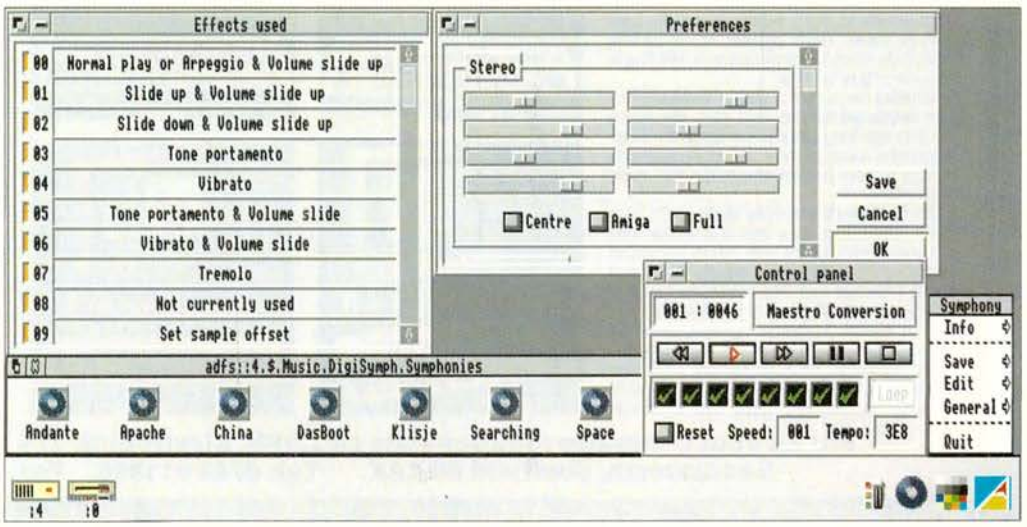
Although any reviewer's opinion about a piece of software is, to a degree, subjective, I can't help but feel that the designers should have gone more with the Arc's tried and tested *modus operandi* than against it. The program contains a warren of windows, menus, sub-menus and operational procedures, and the non-standard windows format does nothing to make it easier to use.

Hackers will love it for its control and complexity. Mere mortals and human musicians may find the effort rather more bother than the result is worth, if so you may prefer Desktop Tracker. What about a notation-based Tracker, or at least one which conforms more to a musician's approach to music rather than a mathematician's?

Whatever my gripes, the demos are some of the most impressive I've heard from a Tracker program – and it comes with umpteen demo files – although it's a shame the best were converted from the Amiga.

But the bottom line is this: You want power? You want control? Then Digital Symphony is for you.

● *You can select an effect in the effects listing window, set a wide range of preferences in the preferences window and control playback from the control panel*



FIRST IMPRESSION

IMPRESSION II

"The best and most comprehensive guide"

Not just a book but an integrated tutorial training pack. Supplied with two disks of sample documents, templates, borders, graphics and text files.

£29.95 (free p&p)

"An excellent way to learn about Impression (Acorn Computing)
"Demonstrates real merit... structured, logical... definitely recommended (Risc User)

GOOD IMPRESSION

£26.95 (free p&p)

A book crammed with ideas and techniques for getting the best out of Impression II. Supplied with 3 disks containing every graphic in the book including school/business stationery, logos and borders. Produce effects like these with ease:

Create shadows

CONTRASTS

Please send cheque/official order to:
WORD PROCESSING,
65 Milldale Crescent,
Wolverhampton,
W.Midlands, WV10 6LR

DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM

DPM Electronics

DPM ELECTRONICS

SOUTH YORKSHIRE'S ACORN EDUCATION DEALER

DPM Electronics can provide all your Acorn requirements: Hardware, Software and excellent after-sales support from our expert staff

WHY DPM ELECTRONICS? – 10 GOOD REASONS

1. **Long established Acorn dealer.** DPM Electronics were initially an Acorn service centre. We have always been fully committed to Acorn Computers, firstly in the maintenance and then in the sales of their systems.
2. **Authorised Acorn Service Centre.** Because of our long established dealings with Acorn Computers we offer servicing facilities for top of the range computers using surface mount components through to older systems such as the BBC model B computers.
3. **South Yorkshire's education dealer,** DPM have passed Acorn's stringent quality of service tests to become part of the new Acorn Education Dealer network. We supply schools throughout South Yorkshire and Derbyshire. Full backup support service. Whatever the level of expertise in your school, problems can still arise; we provide full backup on all systems and software.
4. **Acorn registered CD ROM dealers.** DPM have attended the Acorn and Cumana CD ROM training course and have full in house demonstration systems for the A5000 and A3000 computers.
5. **Full demonstration facilities.** As part of our commitment to Acorn computers we have a wide range of demonstration equipment including A5000, A3000, A4 portable computers, CD ROM, Computer Concepts' laser direct, plus a wide range of peripherals and software.
6. **Networking specialists.** Over the years we have installed and serviced many Acorn networking systems from level 1 to today's latest level 4 software. We also have our own in house Econet systems.
7. **Full backup support service.** DPM offer excellent after sales service both on hardware and software. We are very much aware that people who are new to computing can feel left high and dry if this support is not available.
8. **Special needs.** At DPM we have a wide experience of special needs equipment and can offer advice and support in this field.
9. **Peace of mind.** After repairs and upgrades all equipment is subjected to full diagnostics and safety testing procedures.
10. **Practical experience.** At DPM we do not just sell Acorn computers we use them as an integral part of our business from Desktop Publishing through to our accounts and payroll system.

For all your computer requirements call DPM Electronics, 124 Handsworth Road, Handsworth, Sheffield S9 4AE. Tel: 0742 611996. Fax: 0742 617220

DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM DPM

Hear my song...

Ian Waugh finds out about a powerful new Midi sequencer

SERENADE is a new 16-track Midi sequencer which runs under Risc OS. It has lots of interesting features and some novel ones, too. It fills the gap between Rhapsody and higher-end programs such as !Inspiration – which hasn't been supported by the programmer and still contains bugs – and Studio 24 although Serenade has some high-end features itself.

It also integrates with other Clares products which will prove attractive to both existing and potential users as we'll see. Unlike some music programs, Serenade doesn't use the Arc's internal sounds so you need a Midi interface. The disk is not copy-protected but you must initialise it with your name and address before use.

The main window doubles as a control panel and a piano roll editor, showing notes as horizontal bars on a grid. A piano keyboard on the left shows which notes they represent. To the left of the keyboard are over 20 icons which select various functions many of which can also be selected from the menu.

Serenade works in three modes – Edit, Record and Cut & Paste. A Tools Panel at the bottom of the window changes according to the mode. One of Serenade's nice features is the Audition function which lets you hear the original and an edited version of a track before making your edit final.

Recording uses traditional tape recorder-type transport controls. You must select a track in the Track Sheet before you can record on it which seems somewhat over-protective particularly as you have to click on the record button and then the play button in the main window, too.

There is a separate Tempo track which is not one of the 16. You can record tempo changes in it in real-time by changing the tempo counter during record, and in step-time by clicking new values into it.

In Edit mode you can draw notes on to the screen using a Note Value box to select the duration. You can select volume values from ppp to fff. You can also record in step-time from a Midi keyboard using the Note Value box for the durations. The entry is made at the cursor position. An option to automatically step on by the current duration would be useful.

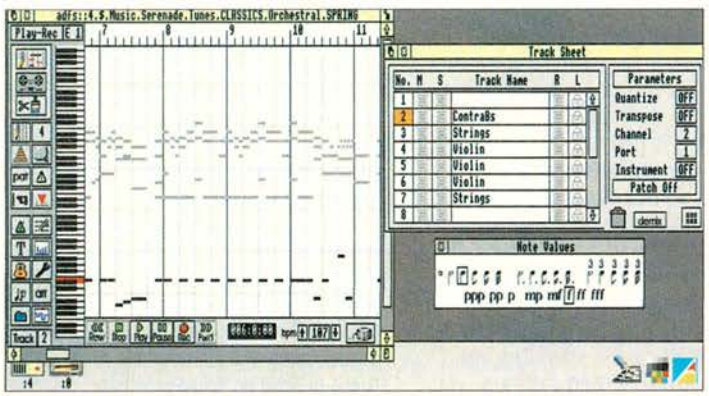
Cut & Paste only works on whole bars which can be restrictive although it does allow you to order large sections of music fairly quickly. The functions work on individual tracks. The Tool Box has Insert, Delete and Copy bar functions which work on the whole song. Here you can also set the time signature although you cannot change this within a song.

The Track Sheet lists the 16 tracks, eight at a time, which you can mute and solo, and lock against alteration.

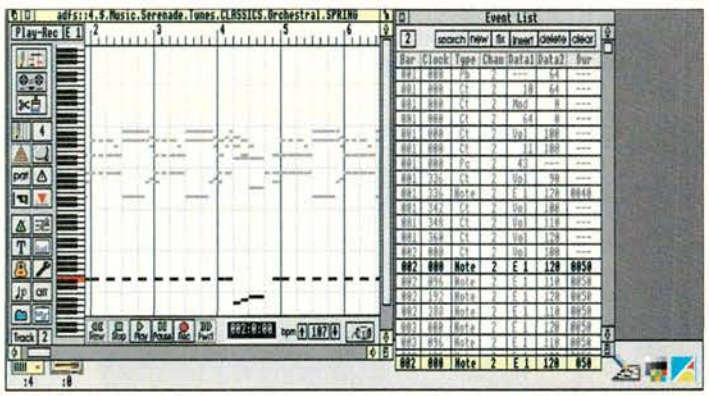
As well as being able to assign each track to a Midi channel and an output port – if your interface supports more than one – you can select instruments by name and you can easily create a set of Patches for an instrument using !Edit. Selecting an instrument here will override any Program Change made in the ➤

PRODUCT SPOTLIGHT

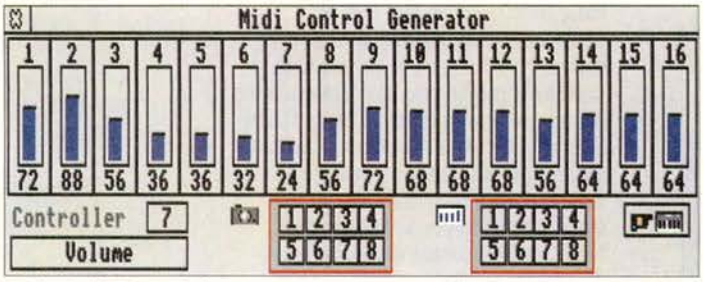
Product: Serenade
Price: £135
Supplier: Clares Micro Supplies, 98 Middlewich Road, Northwich, Cheshire, CW9 7DA
Tel: 0606 48511
Requirements: Risc OS with 1Mb, 2Mb preferred.



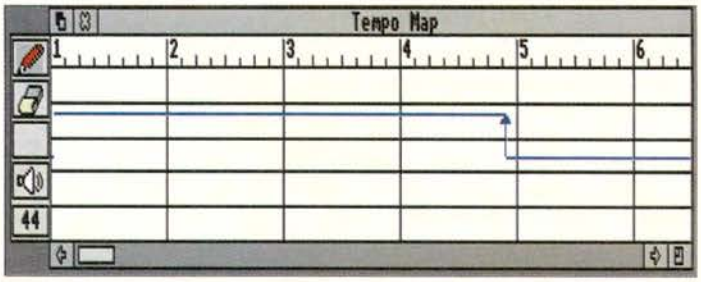
● *Serenade's main screen. The black bars are the notes on the current track, the grey bars indicate notes on other tracks*



● *The Event List lets you isolate and edit individual notes, program changes or controller data*



● *The Midi Control Generator can act as a Midi Mixer using Controller 7 (Volume) and lets you adjust other Controller values, too*



● *The Tempo track is separate to the main 16 tracks and lets you draw in tempo changes.*

➤

first bar in the Event List but subsequent Program Changes in the List will be acted on. Nice thinking.

However, this system doesn't cater for multi-bank instruments or for users with more than one instrument. Access to these has to be via the Event List.

Quantisation can help correct sloppy timing. In Edit mode you can select individual notes so you don't have to quantise a whole track. There is also a percentage setting so you can retain a little human feel.

Quantisation only affects the start position of the note. If you want to adjust the duration you must use a separate Duration function.

The Event List shows music data in alphanumeric format. You can select an event by clicking on it which transfers it to an edit line at the bottom of the window. After editing you click on Fix to confirm the change.

When you select an event in the List, the piano roll window scrolls to it although the event itself is not highlighted. Selecting a note in the piano roll window does not scroll the Event List. The List has a powerful function in Search and Transform which lets you change individual events – anything from a note to a Program Change.

You can edit them individually, apply an offset to them and even randomise them.

The Midi Control Generator lets you set Controller values for each of the 16 Midi channels. In record mode, changes made to the Controllers will be recorded into the current track.

The most obvious use for this is real-time mixing using Controller 7 (volume). You can save eight settings as a snapshot.

Another super facility is the Guitar Chord window. You can select a range of chords from a Chord box and guitarists can create their own chords by clicking on a guitar fretboard.

In Edit mode, these chords become attached to the cursor. You can enter them directly into a track and transpose them by octaves.

The Arrange function lets you put various sections of the song into a play list. For example, if you had recorded a verse followed by a chorus you could use Arrange to play the verse, the chorus and the verse again without having to copy and paste the verse on to the end of the chorus.

Serenade doesn't have notation facilities. Clares' approach is to offer Rhapsody II and ScoreDraw (£61.95 each) for scoring and printing out. However, Rhapsody can have resolution problems interpreting some notes and editing isn't as easy as it could be.

Rhapsody III is due in the Summer and should alleviate some of these problems.

Serenade saves files in Standard Midi File type 1 format which makes transfer between other music programs – even those on other computers – very easy.

However, it can take quite a while to load a file and to erase the current song from memory. For example, a 20k file can take up to 40 seconds to load and over a minute to erase from memory. And then the program can take a minute or so do its housekeeping. These routines really need speeding up.

Clares' Rhythm-Bed can sync to Serenade so you can effectively use it as a drum grid editor. You need version 1.26 (available as an upgrade from Clares) for this but it doesn't respond to tempo changes as yet.

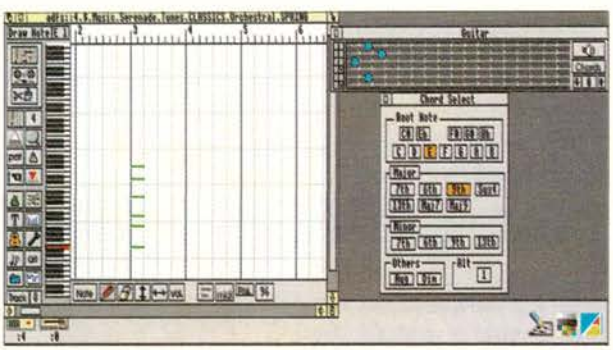
However, you can omit these until the song is finished then load the drum pattern from Rhythm-Bed into a Serenade track.

The manual has a short Getting Started section which runs quickly through the basics but the major part of it is a reference section. The program is fairly easy to use but a little more information and a fuller tutorial wouldn't go amiss.

Wishes and wants include such utilitarian functions as having a separate transport control window and being able to scroll through all data value boxes by holding down a mouse button.

There are keyboard shortcuts for Playback and Stop but these only work in Record/Play mode. It would be nice to be able to use these while editing and having to switch to play mode is annoying.

16 tracks for 16 Midi channels may seem quite adequate. A few more would give you breathing space but this is unlikely to worry the average user.



● *The Guitar function lets you create guitar chords which can be dropped into the editor*

Summing up

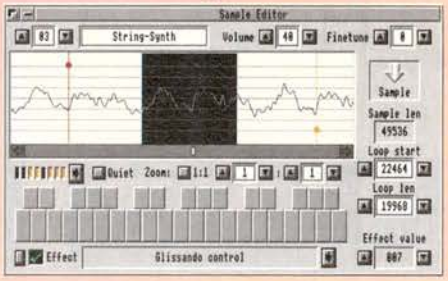
Serenade has been designed to be easy to use – and it is – although it still needs a few I's dotting and T's crossing. Many of the above comments are currently being addressed by the programmer and short term updates will be issued to registered users free of charge.

Serenade is an ideal program for anyone wishing to step up from Rhapsody and it will be welcomed in education which has long wanted an easy-to-use Risc OS-based sequencer.

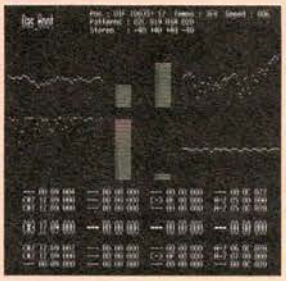
Finally, if you order two or more music programs from Clares you get a 20 per cent discount. Or look at it like this – buy Serenade and you can have Rhythm-Bed for only £13. This has to be a good deal and given the update policy there is little reason for postponing the decision to buy – and make sure you register.

Digital Symphony

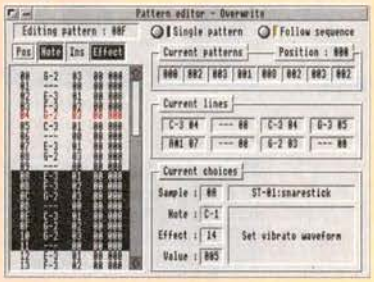
The Definitive SoundTrack Editor



Built in Sample editor, allows you to Cut and Paste parts of the sample. You can try out any of the 40 different special effects, and define a repeat loop by dragging visual markers.



Powerful, deadly accurate, Realtime Monitor, displays Digital Score Data, Vu Bars and Instrument Waveforms.



The Pattern Editor, used in conjunction with the Musical Notation score display, makes editing a track very easy. Once created each pattern can be slotted into the sequence, wherever you wish. Cut and Paste, Copy, Transpose, Exchange, etc... facilities are offered to enhance flexibility.

...but we are not alone in thinking that Digital Symphony is the best ever music sequencer for the Archimedes. Read what Richard Hallas of Risc User said. - Apr 93

- *"Every aspect of the program's implementation, and presentation is very polished, and classy."*
- *"Digital Symphony's facilities are sophisticated, extensive, flexible, and easy to use."*
- *"It is very difficult to fault this excellent piece of software. The facilities couldn't be better, and make it very easy to produce music quickly."*
- *"Altogether this is a first class product, which lives upto all the claims made of it."*

Perfect ProTracker Implementation · MIDI Compatible
Compressed Files · 4096 Patterns · Score Display
Maestro Conversion · 40 Special Effects
100% ARM Code · OctaMED Import

Now with 100% Accurate Real-Time Midi Entry and New Step by Step Tutorial Guide.

£49.95 INC

Upgrade from Tracker, and Save 20%. Phone for details.

Access VISA

Oregan DEVELOPMENTS

Oregan Software Developments
36 Grosvenor Avenue, Streetly,
Sutton Coldfield, B74 3PE.
Tel: 021 353 6044

Send an 800k blank disc, and a 1st class Sta for a Free Demo copy of either Package.

ARCHIVIST PRO

Display Textfiles, Sprites, and Drawfiles ■ Store and Play Maestros, Symphonies, Samples
Master cards created simply by dragging fields to position ■ Flexible label printing
Impression Impulse link ■ Incredibly fast Searches ■ User definable date and formula fields
Master card altered at any stage without data loss ■ Primary and secondary sorting
Fast search and replace ■ Clipboard facilities ■ CSV output with optional Graphbox headers
Print cards using outline fonts ■ Reports generator for quick tabular representation
Running Max, Min, Average and Totals statistics ■ Import from most existing databases

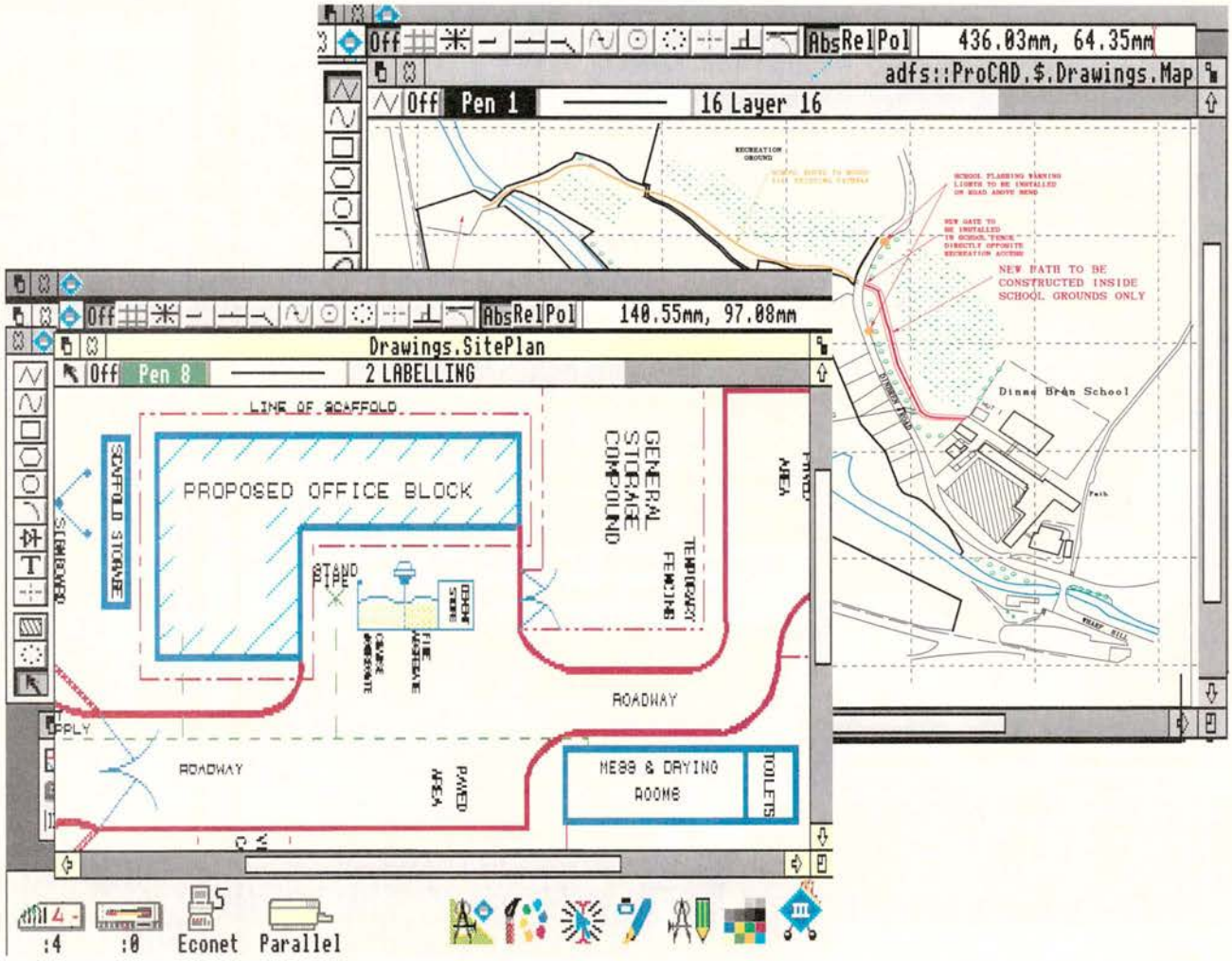
■ Six free exclusive Outline fonts & Demostration files disc ■

£44.95

The No Nonsense Database

CADet

Multi-tasking
RISC OS Compliant
CAD Program



£149.00

Plus VAT

Site Licence available - please phone for details

MINERVA SOFTWARE

MINERVA HOUSE, BARING CRESCENT, EXETER, EX1 1TL
Tel. (0392) 437756 Fax. (0392) 421762

E. & O.E. System Specification subject to change without notice.

It's on the cards

Keith Martin gets organised with some interesting ideas about ThinkSheet

PRODUCT SPOTLIGHT

Product: ThinkSheet
Price: £39
Supplier: Fisher-Marriott Software, 3 Grove Road, Ansty, Warwickshire CV7 9JD.
Tel: 0203 366748

ANYONE who writes a lot of reports (or essays, or articles for *Acorn Computing*) knows that a big part of the job is not the writing but the preparation. Before you can write you need to structure your ideas and gather the information you want.

ThinkSheet is a thought organiser program that aims to help you do this. It provides a simple but very flexible means of structuring and organising your ideas.

Basically, it uses a series of screens, each of which can contain one or many *cards*. On each card you can write any text you like, usually one or a few sentences. For example if you are writing an essay you might create a card for each topic you want to cover.

Next to each card is a keyhole icon. If you click on it you get access to another full screen *behind* that card, on which you can create new cards. Then behind each of these can be another screen of cards, and so on.

The program guides you into organising your ideas into categories and into progressive levels of detail. Each item on a card can always be defined and broken down further. You can also move cards around on the screen or between levels, copy cards – and all the levels inside them – split a card up or join two together.

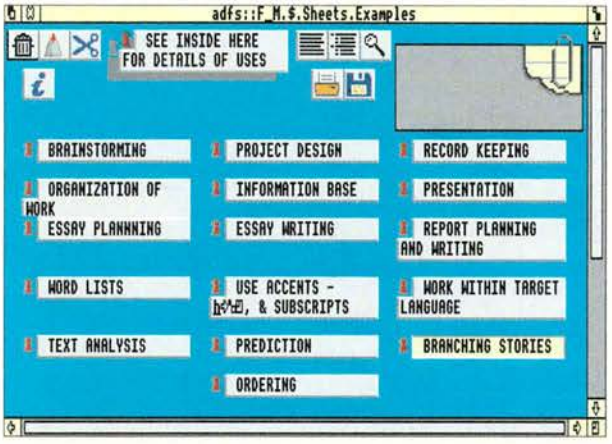
The advantages of this program over scribbling away on paper are the sense of structure, the flexibility of modification and the way that any part of the Think Sheet can be indefinitely expanded. This is a very straightforward program to use, with a few, fairly clear, icons and a very visual layout. You hardly need to refer to the manual, although it too (written with ThinkSheet) is quite clear.

One limitation of the approach is a limited amount of cross-connection between items at different places in the structure. While you can easily copy a card from one place to another, or scan for all cards with a keyword, there is no direct means of matching up cards at different places.

Many of the examples given for the use of ThinkSheet are educational and this is perhaps its strongest application. It can guide pupils of different levels to organise their thoughts and understand how concepts can be broken down and studied as smaller units.

Other possible uses for ThinkSheet are for anyone who needs to brainstorm or push ideas around. To try it out I applied it to a little problem from a roleplaying game. Last session six characters were stuck in 1944 (for complicated reasons) which meant the chance of changing history in any one of a dozen ways. Using ThinkSheet it was possible to organise some brainstorming on what could happen next – it yielded good results.

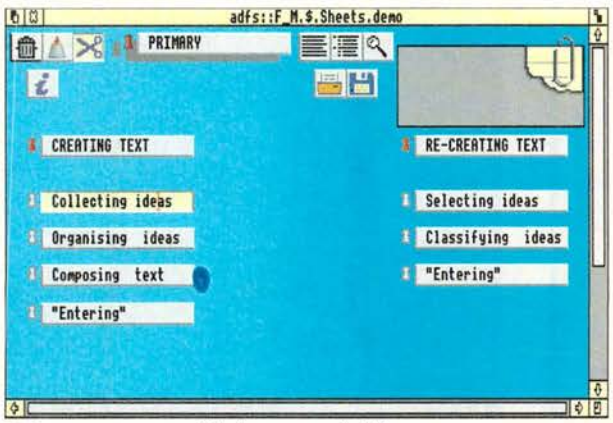
You can save the results of your work (as a Think Sheet) for future amendment. Alternatively you can assemble them as a list (numbered or otherwise) or as connected text. You can print the resulting file or export it to other applications, such as Edit, Impression or another wordprocessor. So, for example, you could work up the outline for an essay, then fill out the complete essay in detail.



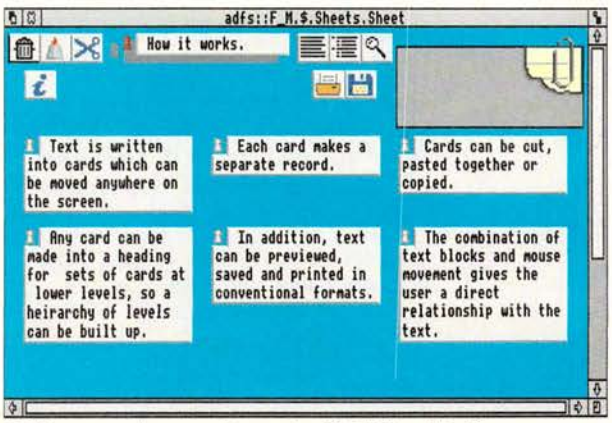
● *A ThinkSheet card can contain lots of sub-cards*

Summing up

ThinkSheet is a useful tool for teaching how to structure ideas, as well as a practical means of doing so. How useful it will be to you depends on how much you need to do either and how much help you need. Overall a quite effective application.



● *You can type straight into a card editing as you go*


adfs::F_M.$.Sheets.Sheet
How it works.
Text is written into cards which can be moved anywhere on the screen.
Each card makes a separate record.
Cards can be cut, pasted together or copied.
Any card can be made into a heading for sets of cards at lower levels, so a heirarchy of levels can be built up.
In addition, text can be previewed, saved and printed in conventional formats.
The combination of text blocks and mouse movement gives the user a direct relationship with the text.

● *The manual was written using ThinkSheet itself*

fabis computing
Acorn Dealer
Carriage Charges (a) £4.00 (b) £2.00

IDE Hard Drives

Ready to use and easy to fit, just plug in and go!
Internal for A3000/A3010/A3020

20MB - £209(a)
81MB - £309(a)

Memory Upgrades

A3010/A3000 1 to 2Mb - £42.55(b)
A3020/A4000 2 to 4Mb - £76.59(b)
A5000 2 to 4Mb - £85.10(b)

Please ring for best prices on all Acorn machines.

SHOWROOM NOW OPEN

0283 42824

38 High Street Burton on Trent Staffordshire DE14 1JS
Mon,Tues,Sat 10am - 5.30pm Thurs, Fri 10am - 7pm
Please add carriage & VAT to all prices

The Market Leaders in Educational Computer Software

RICKITT EDUCATIONAL MEDIA

Ilton • Ilminster • Somerset • TA19 9HS
Tel: 0460 57152 Fax: 0460 53176

The convenient single source for all

EDUCATIONAL SOFTWARE

- Software for Pre-school to GCSE, A'Level, Further Education and Special Needs.
- Programs for: All Acorn and most other computers.
- Over 1000 programs covering the National Curriculum plus a host of utility and revision programs from all the major publishers
- Orders from both home and schools users welcome.

For a free copy of our latest catalogue, phone our
Sales Line 0460 57152 or Fax 0460 53176

470

Quality software for less than a couple of Quid !

Public Domain has a little something for everybody. Be if Arcade Games, DTP, Quality Applications, Digital Symphonies, or even Arm Code Demos, it's all here.

Send a £1 coin for our 13th Demo Disc, and Free printed catalogue.

Better still, send £6 for a selection of 5, of our latest discs.

Arcaynia PD
PO Box 1927
Sutton Coldfield
B74 3QZ

Words and pictures

Keith Martin tests out a thought provoking children's programme

PRODUCT SPOTLIGHT

Product: ThinkLink
Price: £30
Supplier: Xavier Educational Software, Dept. of Psychology, UCNW Bangor, Gwynedd LL57 2DG.
Tel: 0248 351151 ext 2616

THINKLINK is a learning game, for use with children, that employs the same basic idea in five different ways. In each case you have to carry out 10 tasks and then you get a summary of your performance.

The five kinds of task are Read, Odd Man Out, Categorise, Memorise and Sequence. In each case Thinklink displays a number of pictures on the screen – between two and eight as selected. You are then asked to point to, and click on, one or more of them according to a variety of instructions.

The Read task simply gives you instructions on which object to select, either by naming it or by describing it in a short sentence. For example it might say: *Find what most wine is made from* for a bunch of grapes or *Find an insect that flies at night* for a moth.

Categorise means picking four out of eight objects, those that fall into a given category, for example: *Find all the food*. Other categories can be People, Landscapes, Electrical Appliances and so on.

Odd Man Out asks you to select the one item that falls into a different category from the others. For instance there might be three pictures of people and one animal.

Memorise is a little different. In this case you are shown a group of pictures that are then covered up. The task here is to remember where each picture is and then to pick it out in response to a cue or a sentence. This can be quite taxing if you get up to the maximum number (eight items) and you usually have to use some technique for remembering the items and their positions.

Sequence is different again. It shows you four connected pictures that you have to pick in the right order. One example is egg, egg hatching out, chick, chicken – which implies a definite opinion on which one came first.

This program has a simple basic idea, used in a number of ways of varying ingenuity. However, the pictures it displays are all rather blockish images and some are quite a lot clearer than others. For example some of the items of clothing (trousers, vest and so on) are none too obvious at first sight.

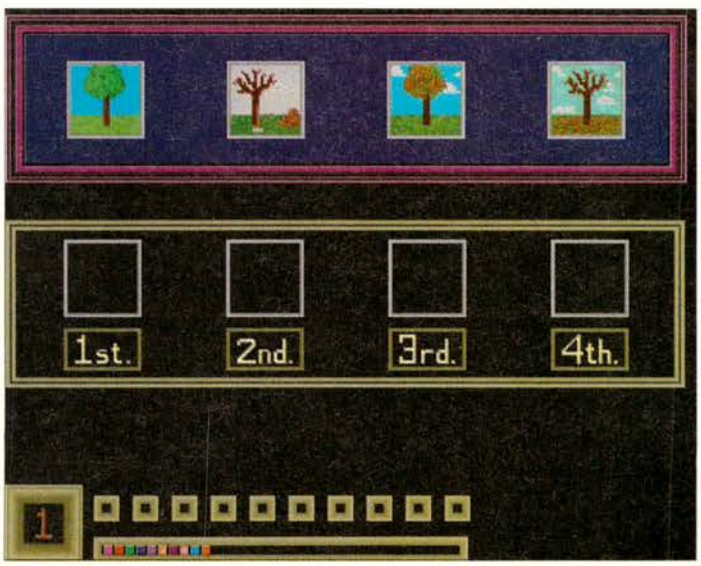
Another problem I found, particularly in the case of Categorise, is that each item is assigned to only one classification. For example, if ThinkLink asks you to: *Find all the plants* this means whole plants, such as a hedge or a tree, but not parts of plants, like an apple, or several plants around a pool – an oasis, considered to be a landscape.

Similarly a kettle is in the category of Electrical Appliances but not in Containers, which includes jugs, bottles and so on. However, a kitchen, categorised as a picture of a Room, is not an Electrical Appliance, even though several appliances can be seen within it. Thus while the classifications are accurate, they may cause confusion for a child who sees the picture in a different, but arguably valid, way.

Summing up

All in all this is a useful program, although not without its problems. More thought needs to be given to the categories and clearer graphics would be particularly useful. Still even in its current state it could certainly provoke some interesting discussion which might be even more useful.

● *One of the tougher tasks, which square hides the orange?*



● *Sequencing through the year, but which season comes first?*

Quality access

Jo Giles examines Advance, the latest software to be released from the Acorn stable

PRODUCT SPOTLIGHT

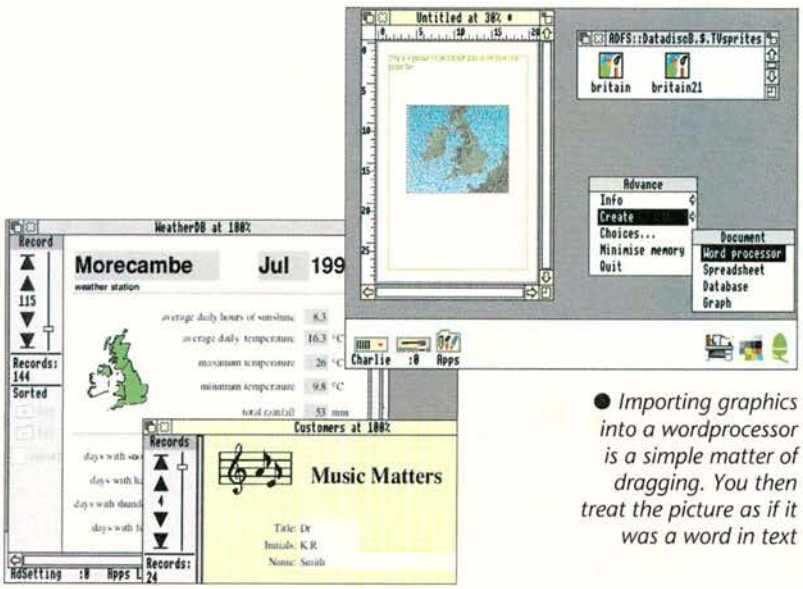
Product: Acorn Advance
Price: £TBA
Supplier: Acorn Computers Ltd, Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN
Tel: 0223 254254
Requirements: Risc OS 3.1, 1Mb but 4Mb recommended

INTEGRATED packages have always been popular, with Mini Office coming to mind as one of the most successful products ever appearing for 8 and 16-bit machines.

However, in the Risc OS environment Minerva's Desktop Office was the only contender and I always found it easy to use and useful for the occasional spreadsheet and graph I needed. With the development of Advance, Acorn have tapped into the main third-party network of Acorn developers to come up with an integrated package for Risc OS 3.1 machines. But is this a step forward or backwards?

The lack of integrated packages on the Acorn is due to the very nature of the Risc OS environment. Why bother with an integrated package when it is so easy to switch from standard standalone applications from Eureka to Impression, from Squirrel to Presenter GTI and so on. There is a host of applications available depending on your needs, expertise and pocket.

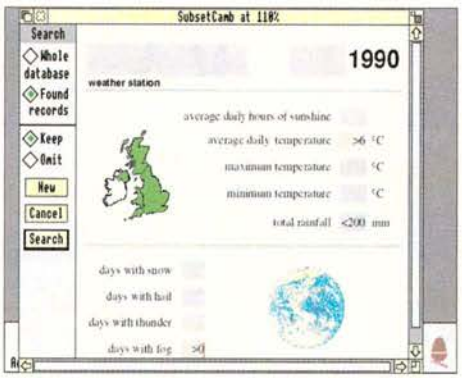
Integrated packages score highest for those new to a machine as the hard work of deciding which standalone package to buy is done for you, not to mention a more attractive price label. By using the major aspects of Clares', Computer



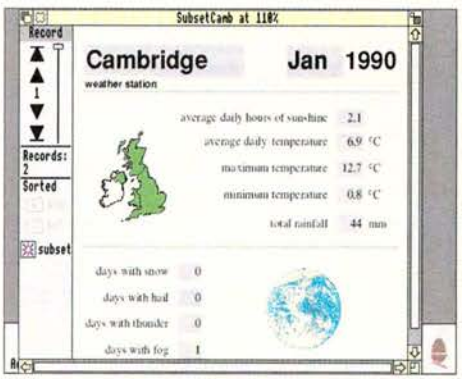
● *Advance's database is easy to design and intuitive to use whatever your interests*

● *Importing graphics into a wordprocessor is a simple matter of dragging. You then treat the picture as if it was a word in text*

● *If the idea of mail-merging makes you nervous, this will solve your worries, it's so easy*



● *Complex search operations are available in the database using a version of the data card*



● *Once a selection of a subset has been made you can examine all the selected records*

Concepts', CRM's and Iota's full-blown packages they have attempted to balance the interests of these companies with those of people new to the Archimedes.

What do you get?

The first thing to note about Advance is that it uses the hardware registration feature built into Risc OS 3.1 which is a new way of copy protecting software. Though I appreciate what Acorn are trying to do, I would have preferred the PC approach where you have the option to de-install, plus install the product two or three times.

With a machine at work and two at home, must I buy three times even though only *I* will be using it? As it is you can either buy a site licence or put up with an annoying message and iconbar icon each time you load an Advance application.

Whatever machine you decide to use Advance runs off hard or floppy disk and loads itself on to the iconbar, from where you can select an application to run. Your machine's memory determines whether you'll be able to access more than one at once.

1Mb users – and some 2Mb – will find themselves restricted to one application at a time resorting to the Minimise option from the iconbar menu to remove the previously loaded program. The sizes of the applications really only make it feasible to flip between them. To have them all available together you need a 4Mb machine.

The manual is detailed and well written and the tutorials take you through a specific databases, spreadsheets, wordprocessed documents and graphs created by a shop in Colebridge, Sussex called Music Matters. Tutorials are supported by a data disk containing the stages taken to achieve their goals.

A second manual covers a series of Weather projects which, though aimed at schools, are worth working through as they provide a good refresher of what you have learnt in the main manual. Data, CSV and illustrations are all provided on a second data disk.

A word to the wise

To any one in the know, the wordprocessor is obviously a Computer Concepts creation using their Impulse system with the mail-merge option. Similar in style to Impression, this is a wordprocessor not a desktop publishing package. Graphics can be imported but in text-embedded frames only – they act the same way as a single letter, though larger, and move with the text.

As with any of these applications you can create a simple piece of printed text or an elaborate report using different fonts, effects, colours as well as graph and spreadsheet data from the other parts of the package.

All the usual features are present such as the ability to cut and paste text, alter the page layout – perhaps you'd prefer a landscape page to a portrait one, indent paragraphs or change the the overall alignment from left to right and from centred to fully justified.

You may want to alter the line spacing, have the aid of rulers or add emphasis of bold, italic or underlined text. The manual comes into its own here as the good use of examples and illustrations shows you in simple terms what the different options are and what can be achieved with them.

The use of the Music Matters staff is a nice touch and one which will make the large manual much more accessible to the first time user whether you want to follow how Bob Davies produced a two column, double-sided leaflet with map and imported data from his database or how he used another database to mail-shot his customers with a personal letter.

All the techniques are covered from using scale views, to importing and exporting information. A good-sized dictionary is included which can be added to as you spell check your work and you can insert and go to specific pages. The find/replace option is also in evidence as is the ability to customise paragraphs and add page numbers, the current date and headers and footers.

All in all it's a powerful and very usable wordprocessor which stands well on its own. For anyone who intends to venture into DTP it's a first-class way of learning the basics.

Organising information

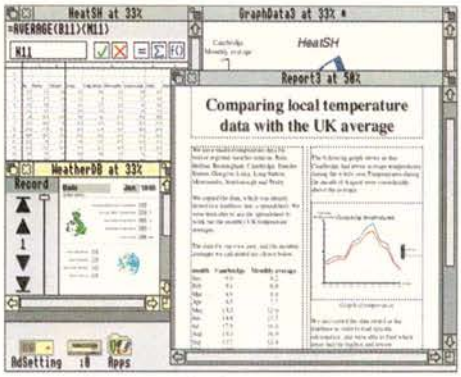
The Advance database is of the simple card-index style which can be searched and sorted and your information collated into CSV format for use in the other elements of the package.

Sprite and drawfiles can be built into the base input card or added afresh with the data to make a more impressive looking database. Colour, text size and fonts also make the database conform to your specification.

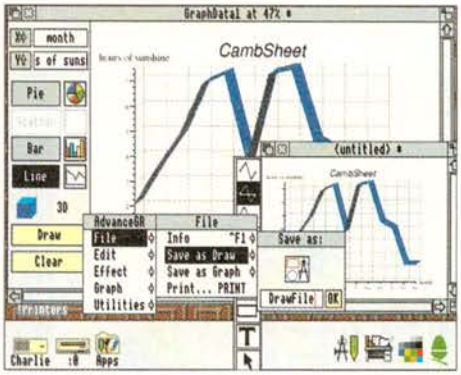
Designing record cards is very straightforward and they can be changed at any time. You can choose from text, integer, real number, graphic, date and boolean fields with the whole process completely wysiwyg.

Once you move on to actual data ➤

> Whatever machine you decide to use Advance runs off hard or floppy disk and loads itself on to the iconbar



● *If you've got 4Mb of memory the package reaches its full potential*



● *You can save your graph as a drawfile which can be dragged into another program*

● *The Spreadsheet includes a variety of functions and shortcuts*

➤

input, the controls are self explanatory but if in doubt the manual holds your hand the whole way. Information can be put straight in or via as CSV/TSV files, sorted and searched and subsets of your searches – up to a depth of three enquiries – can be used in their own right.

Different cards can be accessed via a *go to* option, a slider bar or arrow icons. You can even opt for an all-records option which will allow you to scroll through your entire database. When it comes to printing you can again choose from any or all of your record cards.

The whole process is very easy and I found the report editor, with optional headers and footers, a welcome addition especially with its ability to add graphics and current date. An excellent introduction to databases in general.

Spreading the data

Spreadsheets have emerged from the financial sector so the spreadsheet is as much as important part of any software suite as a wordprocessor or database.

The Advance spreadsheet provides a simple interface which hides a host of features that don't complicate simple calculations but give more advanced users a necessary flexibility.

Advance gives you access to up to 5,000 cells, but in practice it's the size of your computer's memory that's the real restriction. You can have up to four sheets on screen at once which you can switch between or transfer information to and from.

The step-by-step tutorials explain the basics and then introduce you to the shortcuts. I particularly liked the ease with which you can make column and rows change their width and height to accommodate the largest piece of information. I found it one of the easiest spreadsheet programs to use as most of the formulae structures are logical.

Hints on getting the most from the program are scattered throughout the text and if you get lost – which is unlikely – the data disk holds saved files from which you can work. All the programs use standard Risc OS procedures so even if you are new to the machine you'll find familiar processes as you work your way through the programs.

Importing and exporting data is dealt with well as are the points covering customising your work with colour, fonts and styles. Inputting raw data is straightforward and the use of the icons at the top of screen save time and effort when you are creating formulae.

Data can be sorted into alphabetical order or put in order of descending values. Copying and pasting are principles taken straight from the wordprocessor with the option to paste values or create a fixed reference rather than just paste, so formulae don't have to be re-entered. For more advanced spreadsheet use, there is a wide selection of functions for trigonometrical and algebraic calculations as well as provision for the addition of time, days and so on. A deceptively simple application.

Presentation is the key

Each of the previous sections shows you how to interact with the Graph application, but I found this part of the package the most disappointing as you cannot input data straight in as it must be via a CSV file created as text in the wordprocessor or from the spreadsheet or database.

However, what the graph program does, it does very well. You can opt for a pie, scatter, bar or line graph with the options of outline, 2D or 3D graphs.

There is control over the number, size and start point of the ranges you are charting. For instance, while the string option allows you to specify ranges of different sizes. The axes can be altered too.

To enhance the look of your graph again you have control over the colours, text and scale view with the option to save your work as a graph or drawfile. A nice finishing touch.

Summing up

For those of you who wanted ClarisWorks on the Acorn with the ability to embed spreadsheets into text and so on – this isn't it. But if you want a reliable spreadsheet, wordprocessor and database with the ability to create graphs from your work, Advance is for you.

It might be all you will ever need, but because of the built-in upgrade path to Impression, Schema and DataPower the learning curve on those products will be simplified if you do decide you need the additional features.

Program	Import as	Export as
Wordprocessor	Drawfile, Sprite, CSV, TSV, Text (inc DDF)	Text, Drawfile (illustrations only)
Database	Drawfile, Sprite and Text (to a graphic field), CSV, TSV	Drawfile, CSV, TSV, Advance Graph
Spreadsheet	CSV, TSV, WK1 (Lotus 1-2-3 format), Schema	Drawfile, TSV, CSV, Formulae, Text, Advance Graph
Graph	CSV	Drawfile

● *The ways Acorn Advance can interact with the wider Acorn world*

NEXUS JUNIOR

Cost Effective Resource Sharing for the Primary School

Four Computers: One Hard Disc

For less than £600 Nexus Junior enables four of your computers to share a hard disc in just one of them. Nexus Junior is the ideal choice with which to share resources and printing. Released from the restrictions of applications on floppy discs or the complexities of multiple hard disc management, Nexus Junior makes life easier.

Nexus Junior gives you the freedom to share valuable resources such as ink jet or colour printers. Database files can be shared. In fact, all types of files can easily be shared to encourage more collaborative approaches to I.T.

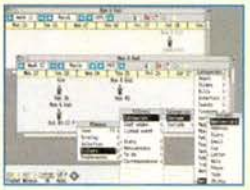
NEXUS JUNIOR GIVES YOU THE TIME TO TEACH

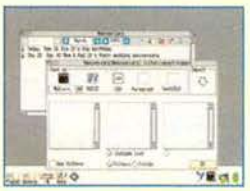
SJ RESEARCH

SJ Research Limited
J1 The Paddocks, 347 Cherry Hinton Road,
Cambridge CB1 4DH
Tel: 0223 416715 Fax: 0223 416440

Almanac . . . The power to plan

EXCLUSIVE





Be in control of your life with Almanac. With Almanac you have the power to plan your life quickly and easily. You can keep track of all names and addresses, anniversaries, birthdays, meetings, messages sent and received, tasks to be done and those that have been finished – today, last month or for the next hundred years.

With Almanac you can free yourself from the mundane chores of keeping up with birthdays or your appointments, just enter it once and Almanac will display it whenever you view the day, the week, the month or the year it happens in, without you having to worry about it again.

With Almanac you don't have to find those lists of jobs to be done, add the task to the Almanac database and it will always display the things that haven't been done yet, the ones that are urgent and ones that have been finished ahead of time.

Plus Almanac is a complete address book for home and business that can keep track of all correspondence, phone calls and E-mail to and from any person – plus the ability to automatically display the letter text or any notes and pictures associated with a communication.

But the power of Almanac doesn't stop there. You can link all types of records to any other type so you could specify a person and attach all appropriate anniversaries, to do records and correspondence to that person. Then automatically display every record that's linked to him or her via a special sticky record.

But even then Almanac isn't finished: Every record can have a category type – like electricity, gas, tennis or art – set up and special filter commands allow you to create new Almanac sections that only include or exclude certain groups of categories. So you can have your own special section displaying only doctor, dentist and hospital visits, and another that excludes these but includes everything else.

With Almanac you are given the power to control your life the way you want it. Order yours NOW for only £60 + VAT (£70.50)

Acorn COMPUTING

ORDER FORM

Please send me the following:

	Product	Price	Code
☐	Almanac	£60.00 + VAT	2345

I wish to pay by:

☐ Cheque/Eurocheque enclosed made payable to Europress Direct
☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

POSTAGE: Add £1.50 to all UK orders under £10, £5 for Eire/ECC orders, £10 for all Overseas postage

No: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ Expiry Date ☐/☐

Name..... Signed .....

Address .....

.....

.....

..... Postcode.....

Send to: Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB

☐ Please tick if you do not wish to receive promotional material from other companies

Order at any time of the day or night

PHONE ORDERS: 051 357 1275. FAX: 051 357 2813 GENERAL ENQUIRIES 051 357 2961

Don't forget to give your name, address and credit card number

Bits and pisces

HAVING talked about the principles and basic drawing procedures it now time to get down to some work. First of all I'll introduce two features which allow flexibility and save time – *cut and paste* and *transparency*.

Essentially cut and paste allows you to chop bits out of a screen, then save or put them back in a variety of ways. Transparency allows you the added bonus of stripping out just the object you're cutting from its background. These parts of the screen are referred to as sprites or motifs depending on the package you're using.

To put these features into practice we'll be creating a fishtank. Why a fishtank? Well it gives you lots of opportunity for overlapping images in different sizes, orientations and colours. By drawing one or two fish and using cut and paste you can produce a whole tank by flipping, rescaling (no puns intended), rotating and recolouring.

If you use colour change effects you can effectively draw behind the fish so that if you've forgotten to put in the greenery you can add it later if you've a plainish background to draw on.

Fish can be drawn by a variety of pens and brushes in different colours to produce great detail or in outline using Magic Brush in Pro-Artisan or Wash colours in Revelation to provide the colouring.

Whichever way you tackle the surface appearance you'll probably end up painting on to the background and have some tidying up to do. There are ways round this in Pro-Artisan and Artisan 2 as well as Revelation but the approaches are different.

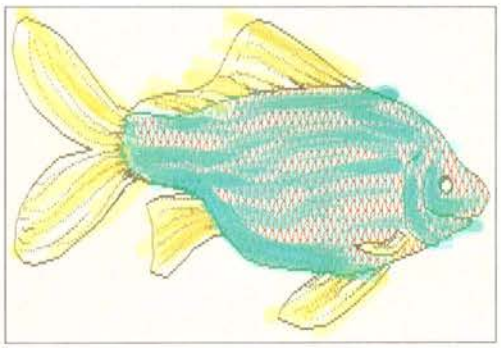
In Artisan 2 and Pro-Artisan the easiest way is to draw the fish outline in black, fill the background with white and the fish in a colour you're not likely to use in the painting, such as pink. If you select pink to be the transparent colour you can save the whole drawing as a sprite either in the sprite store or on disk. You can now overpaint the fish as much as you like.

To tidy up the edges simply select the sprite with transparent pink bits – the interior of the fish – and paste it over the work you've just produced. The solid white background of the sprite will cover any overspill of paint and the transparent section will allow your fish to show through. In effect, you're using a mask to get rid of the messy bits.

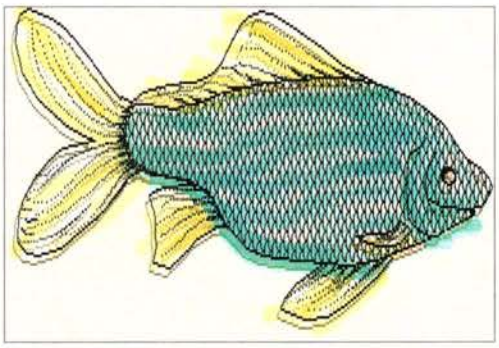
In Revelation you'd fill the background up to the edge of the original fish drawing in any colour, selecting the undo option to remove it and the last change option to give you a mask. You can then float over the top of the messy fish painting and remove all the bits outside the fish. The illustrations show how this is done.

As the original outline and scale detail of my fish was overpainted, I decided to replace this by filling the black outline of the original fish in red. I used undo to change back and last change to get a fish mask to apply over the top of my completed fish.

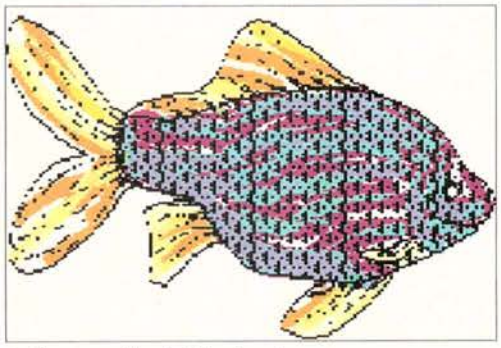
If you opt for the Magic Brush in Pro-Artisan and Artisan 2 you can change any colour for another



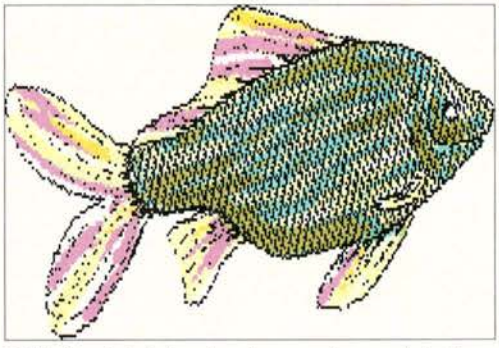
● *A fish is overpainted with layers of wash colours so that the original outline can still be seen*



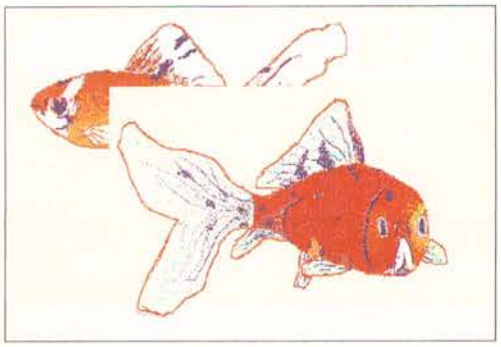
● *Floating the outline over the painted fish*



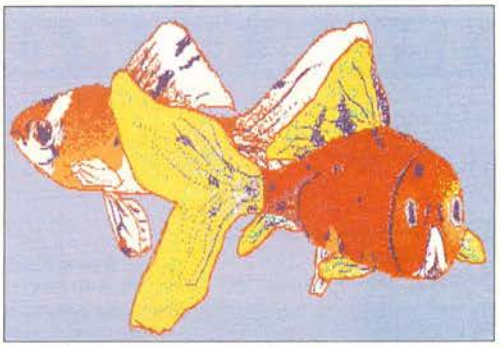
● *Shortened basic fish drawing*



● *The basic fish drawing has now been rotated*



● *One fish background blocking out one below*



● *No backgrounds getting in the way here*

There's a hint of fish and water colour about Steve Bruntlett's article this month

singly or in multiples. So you could opt to change white to orange and put a few stripes on the fish then change to green and put a few green stripes alongside the orange ones bearing in mind that only the white will change.

If you wanted to get really clever, you could change the background of the fish drawing to blue and use the Magic Brush on the white interior to avoid any painting past the edges so avoiding the need for a mask to tidy up the image.

Try going through some of these stages and work out how you get a nice clean fish with your package without having to fill in lots of overdrawn areas one at a time or pixel by pixel using the zoom option which is very tedious.

Once you've created a couple of fish you can start producing a series of them for an aquarium scene. The simplest variations on your original fish are ones which are flipped from left to right or rotated. You can rescale fish so that they're longer or shorter but you can also distort them using different shapes such as boxes, trapezoids, triangles, ovals or hand-drawn irregular shapes and so on.

All you need to do is to draw such a shape in a solid colour or draw it in outline and fill it in, cut out the fish you want to distort and using either the distort option on the tools menu of Pro-Artisan or the Motif to Fit option on Revelation just drop the fish into the shape and watch it transform.

Some shapes work better than others so you'll need to experiment. Ovals work quite well even if they don't distort a great deal. Then you're ready to create your aquarium.

Split up your screens of different fish into individual drawings. These can either be stored in the sprite store and in turn on disk in a sprite file if you're using Pro-Artisan or as Motifs in a Motif directory if using Revelation. See your instruction manual on how to get to that stage but before you start you need to get rid of the background of each fish.

In Pro-Artisan you set the background colour to transparent and in Revelation you select the shrink option when cutting out the fish. The illustrations show the problem you'll have if you don't go through this procedure.

If one fish has a solid background this means that you can't overlay it without blocking out part of the one underneath. If the background is transparent or has had shrink applied to it, parts of the fish won't be blocked out when you overlay it and will stand a better chance of looking as though it's physically in front of the fish you've just dropped it on to.

● *15 year old Hannah had a different view of the aquarium*

Your aquarium can just be lots of overlapping fish or could include all the rest of the paraphernalia – treasure chests, pirate ships, skeletons, shells and so on. I'd suggest you restrict yourself to some greenery, rockery, gravel and bubbles.

If you want to put some greenery in your picture draw some of that in advance as well as some bits of rock and a patch of gravel. By overlapping these bits and pieces you'll produce a more three-dimensional looking image than if it was just painted in one go.

You could start the aquarium picture by painting in some gravel either using different coloured blobs or by producing a wild bit of texture in appropriate colours and cutting out some small sections and painting with those. Similarly you could produce some quite striking greenery by producing a similarly textured patch, cutting out a thin slice and using that to draw the weeds, for instance.

Bubbles could be drawn singly in a couple of sizes, cut and used as brushes to produce trails. Details like these can be added at any stage depending on how far you want to develop the painting.

Working in this way allows you to work in layers, from the back of the image using smaller fish towards the front of the image using larger ones. This gives you some effect of distance but if you also make your fish towards the back a bit duller or greyer that also adds to the effect of distance.

Blending some of the fish details would also add to the illusion with the sharply detailed larger brightly coloured fish in the foreground and the smaller, duller, greyer and blended tiddlers towards the back.

Layering your fish is straightforward. Start at the back with a smattering of small fry and build up the second layer using larger fish and the odd strand of weeds and stream of bubbles. If you get the fish on the wrong layer you can always swap them around. Fish can be recoloured as you add them, altered beforehand or you can make all your modifications when you've finished.

Whatever you do, save your aquarium in stages, with the addition of every fish if you've enough disk space, so that you can animate the process once it's completed.

It should look quite spectacular as your aquarium slowly fills up with fish, weeds, rockery, gravel and bubbles. The principles are not restricted to fish tanks and can be used to good effect in crowd scenes or landscape painting.

● *Next month we'll be adding more techniques to your repertoire.*

> If you want to put some greenery in your picture draw some of that in advance as well as some bits of rock and a patch of gravel

ıance to play
h top pianist
derman.

r-old musician
ıdition to star
ıaestro when he
tour at the
Theatre next

ıet, two days
nes a teenager,
ingboard to his
as famous as
s inspired him.
e professional
l travel the
ıathan from his
ne home. "I
n opportunity
."
has his grade
and is also an
ench horn and
.
ɔiano teacher
not teach him
Richard
ht m-

Last week the Express reported on the complaints of management of Edgeley branch was not aware of manager on December 10 to make the views of the

The cage in whi aluminium cans are stored w

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE
BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in t classroom as they would able to see traffic movi along the new road.

The children even went far as to propose a new ro for the road to the to planners. The proposed ro would have a negligil impact on the area but s provide the much needed rel to existing roads.

A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si seizing power jointly with the Conservati party has produced a h 1,000 " servi

● REDUCING mainten

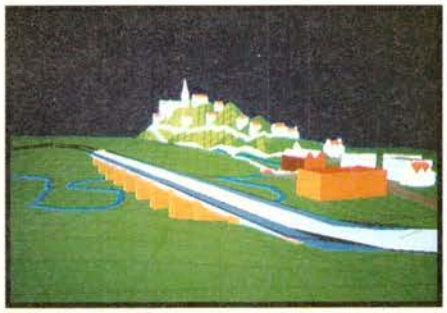
Other econ departmental b cutting scho fees.

Th

Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.

Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.



◆ Fully RISC OS 2 & 3 Compliant and 1 megabyte friendly ◆ Suitable for all ages from 6 onwards ◆ Easy and quick entry of all symbols (over 100) ◆ Wooded areas which translate into impressive 3D landscapes ◆ Definable map size and scale which can be linked to the national grid references ◆ Powerful 3D mode giving a true representation of the landscape ◆ Stunning 3D models which can be saved as a sprite file for use with other applications.

£79.95 inc. VAT

All specifications subject to alteration without notice

AVAILABLE • APRIL 1ST 1993

CLARES

We accept Access and Visa.

98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

Accessing the airways

Mike Cook delves into another selection of your technical posers

AGENDA

- Communication with others
- Disks for an Electron
- Adding sound
- Fault detection
- Repeating 1s
- Compact colour video

Q I AM 11 years old. I have an A3000 Archimedes computer and I would like to pass messages to my friend who has a Commodore Amiga. He lives one mile away.

Could you please tell me what equipment I need to buy, how much it would cost and where I could obtain it? – **E. Overton, Lincoln.**

A *The simplest way of passing messages to your friend is through the telephone line. What you want is a modem and some communications software.*

This should cost you somewhere between £50 and £100. Your friend will need the same, only suitable for his computer.

Generally the same modem will work with any computer but the communications software will have to be machine specific. Then you can either phone each other directly or leave messages on your local computer bulletin board.

When you get older – at least 14 – you could obtain an amateur radio licence and communicate over the air using a packet radio system. However, you will then need a transmitter and receiver and a packet terminal unit which would set you back about £500.

Is that a repair?

Q I HAVE a BBC B which is faulty. I have had it *repaired* by the local Acorn dealer but it either didn't work when I collected it or has developed the same faults again shortly afterwards.

My computer is a Model B with a series 7 board and an Acorn DFS using the 1771 chip.

It will sometimes work quite normally but after a while the screen freezes except for the flashing cursor.

None of the keys has any effect but if the computer is switched off then on again it may work for a while before displaying the same problem.

Sometimes, on switch-on, the usual message appears on the screen but I get a continuous tone and nothing can be input at the keyboard.

I reckon I have probably spent far more money on repairs than the computer is worth. As I am now retired I do not have much spare cash.

Nevertheless, I like my BBC Micro and I have a considerable amount of software, including WordWise files, which I would like to be able to use again.

On another point to finish. If I do get the BBC Micro working correctly, is there any way of transferring the WordWise files to my Archimedes 310 so that they can be converted to First Word Plus files? – **D. Binns, York.**

A *For a computer to work at all, about 95 per cent of the circuitry must be working. When it is not working you often get the faults that you have described, therefore they are not a very good indicator of what exactly is going wrong.*

However, as the fault sometimes clears when switching off and on again, this points to the main problem with aging computers, the intermittent contact.

Something that just breaks contact briefly can crash the computer's software. Then, when switched on

➤

Monitoring the Arc for sound output

Q I AM using an A3000 and recently parted with my Philips 8803 monitor and purchased an Acorn AKF 18 monitor which does not support sound.

While I do not require high sound output I would still like to have reasonable sound at times for music programs such as Rhapsody and so on.

In the September issue of ***The Micro User*** was a letter recommending Ross speakers from Argos. My concern is that the sound output from the A3000 is for 32 ohms.

Would you consider these speakers suitable for the A3000, taking into account that it is doubtful whether they are 32 ohms, or does the fact there is a small amp involved make a difference?

I do not want to put my A3000 at risk in any way and would very much like your opinion on this before I buy. – **K. R. Coton, Solihull, West Midlands.**

A *In the old days of valve amplifiers the matching of speaker impedances was quite important. However, now, with modern transistors and operational amplifiers, it becomes less so. The impedance output of an amplifier gives you a guide to what impedance load to use to get maximum power transfer. If you use a different load you are not extracting all the power you could from the amplifier.*

In some amplifier designs the power is dissipated in the amplifier but this is not a problem with any of the Risc OS machines.

The speakers you are interested in have a small amplifier built in and this will have a high input impedance so placing no load on the machine at all.

This product is perfectly safe to use.

➤

again, it will work for a time until the contact is broken again.

Of course, the laws that govern electronics say that when you send it in for repair it will work.

As they can't find anything wrong with it, it will be returned as working and you will be charged the minimum fee.

The problem here is tracking it down, although there are a number of prime suspects that always give trouble.

One is the ribbon cable connecting the computer and the keyboard: Has this been replaced?

The other is any socket that has had a mother board fitted to it. These tend to overstretch the contacts and can cause trouble when they are removed or when they are not seated properly.

It took me about four months to track down that my CPU socket was faulty. I even replaced some rom sockets before I found the culprit. So these sorts of problems can be solved but it does take time. How about calling in your local college to help you out?

Some of these might be running computer maintenance courses and might be glad to have a computer to practice on.

On the transfer point you have basically two approaches you can take. First of all you could get a 5.25 drive adaptor card and plug your old drives into the A310.

Then, using a DFS utility reader you can copy the files onto the new smaller drives. It might be best to save your WordWise files without embedded commands first. This method has the advantage that it is not absolutely necessary to get your old system working first.

*Secondly, you could rig up a serial cable between the two machines and transfer the files across that way. You can do it by hand like using a *FX3 command to send everything to the serial port and using some comms software on the A310 to pick up the data.*

On the other hand you could use a software package to transfer your files over, and several companies produce them: BrainSoft, Risc Developments, Really Good Software or Watford Electronics.

Note that you will have to reformat your files when they arrive in the new wordprocessor.

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

He will answer any questions about difficulties you may be having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

Electron floppies

Q I HAVE an Acorn Electron, Plus 1, Plus 3 and a Brother M-1009 Printer, plus View. I can work very well with View, Plus 1 and tapes.

The trouble has come since I was able to pick up the Plus 3 Disk Drive. The 3.5in floppy disks I have are, in the main, Sony Double Sided MFD-2DD.

I have managed to copy the Welcome disk, not by *DIRCOPY but by *BACKUP. When I try to format the disk with *EFORM using the L for double sided, the disk will not verify but if I use M for single sided it will. Why?

Since the demise of *Electron User* – how I wish I'd kept back copies – I've been at a loss to get information.

What 3.5in disks are available for the Electron? I miss Mini Office very much. – **W. J. Moss, Bromley, Kent.**

A *In order to use both sides of a disk you need a double-sided disk drive. Now, some Plus 3s were fitted with one, others with a single-sided drive. It sounds like you have the latter. You could find out for sure if you dismantle the box and look at the disk drive. The arm should consist of two heads, not one head and a felt pad.*

As far as I know little software was released for the Electron on disk and with it being so long since any Electrons were made I doubt whether this situation will change.

Compact Colour

Q COULD you please tell me how to convert the video output on the Master Compact to a colour UHF so it can be used with a TV? Also I have a power supply that converts 240V AC to 12V DC. If wired correctly could I use it to power an additional disk drive? – **M. Fearon, Grappenhall, Cheshire.**

A *The video output from a Compact is mono and ever more shall be so. One way to get colour UHF from a Compact is to connect the RGB output to a PAL encoder and then modulate the output. But this is quite an expensive operation.*

A more acceptable method nowadays would be to have a lead made up by a reputable dealer to link the RGB to a Scart plug and link to a TV with the right socket. They are becoming more common.

Phantom keypress on a Master 128

Q I OWN a Master 128 and we have been very happy together. But recently I have come across a very annoying problem: When I turn the machine on everything seems fine then all of a sudden the number 1 comes up and automatically repeats itself and I have not even touched the keyboard.

The machine isn't overheating because it happens as soon as I switch on. I am not an expert but I have dusted and cleaned the inside of my computer to no avail. I would be grateful if you could advise and possibly tell me the cause of this problem. – **C. R. Broughton, Erdington, Birmingham.**

A *The contacts of the switch for key 1 must be resting together separated by only a thin oxide layer and occasionally this breaks down and you get the effect of the key being held down. The auto-repeat facility then fires characters into the input buffer.*

The most effective solution would be to replace the key with a completely new one or, failing that, with one that is little used. As a temporary measure you could try entering:

```
*FX11,0
```

to turn off the auto-repeat or, since you have a Master:

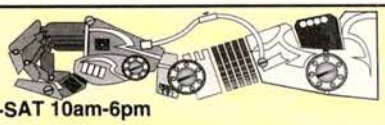
```
*CONFIGURE REPEAT 0
```

which will switch off the key repeat permanently, even through a switch off. Then when the key sticks you'll only get a single 1, not a whole string of the darn things.

ARM TECH (UK) LTD

Opening Hours

MON-TUE 10am-6pm WED 10am-1pm THU-FRI-SAT 10am-6pm



86 Meadowbank, Moor Lane, Holway
HOLYWELL, CLWYD. CH8 7EF
Tel/Fax :- 0352 715840

Authorised Acorn Dealer

Access VISA

Hard Discs IDE SCSI

	IDE	SCSI
80 Mb Int	£225	£275
120 Mb Int	£280	£345
170 Mb Int	£370	£420
200 Mb Int	£439	£499
520 Mb Int	£849	£899
A3010 80meg Wih Card (Int)		£419
A3000 80meg Wih Card (Int)		£399

For external units please add £89

Syquest 44meg Removable Cased	£429
Syquest 84meg Removable Cased	£539
Syquest Cartridge 44/84meg	£69/£99
IDE controller 300/400/A3000	£99
Morley 16bit Scsi Interface	£149
A3000 (Morley) Scsi Interface	£169
Scsi 16bit Interface 300/400/5000	£139
V-Twist A3000 Turbo Interface(Int)	£159
External Hard Drive case including fan & power supply	£89

MONITORS

Acorn Colour	£199
Acorn AKF30/AKF40	£219
Acorn MuliScan AKF18	£279
Microvitec Multi-Sync	£399

CC LASER DIRECT

Laser Direct HiRes4 (LBP-4)	£999
Laser Direct HiRes8 (LBP-8)	£1319
Canon LB4 Toner Cartridge	£65
Canon LB8 Toner Cartridge	£79

HARDWARE UPGRADES

5.25" Ext. floppy disc I/F A400	£39
5.25" Ext. floppy disc I/F A3000	£39
ARM 3 Upgrade	£189
Canon BJ10ex Turbo Driver (CC)	£45
Dongle Dangle	£6
Dust cover (Keybd + Monitor)	£12
Econet Module	£49
FaxPack (CC)	£299
Graphics Enhancer	£199
Hawk V9 Video Digitiser	£199
I/O Expansion Card	£79
Joystick I/F (New Fits A5000)	£34
Joymaster (A3010 Only)	£24
Keyboard Extension cable	£8
Midi Upgrade to I/O Exp. Card	£27
Midi Expansion Card	£65
A3000 Monitor Stand	£24
Mouse Extender	£8
Mouse (New style)	£40
Micro Mouse (Clares)	£31
Scanlight (A4) (CC)	£299
Scanlight Junior 256 (CC)	£199
Speed King Joystick	£11
Quickjoy Joystick	£9
Risc-OS 3.10 ROMS	£42
Risc-OS 3 Carrier Board 300/400	£24
Serial Upgrade A3000	£19
User & Midi Podule A3000	£46
VIDC Enhancer	£29
Vision Digitizer Mono Int £49 Ext	£79
Vision Digitizer Colour Int£79/Ext	£95

BOOKS

Acorn Education Directory	£4.95
Archi Assembly Language	£14.95
Archi First Steps	£9.95
Archi Operating System	£14.95
C: A Dabhand Guide	£14.95
Above books have accompanying discs add £7	
Acorn DTP Adv User Guide	£14.95
Basic V: A Dabhand Guide	£9.95
BBC Basic Guide (NEW 3.10)	£19.95
Budget DTP	£12.95
Guide To Wimp Programming	£14.95
RISC-OS 3 PRM's	CALL
RISCOS Style Guide	£10
Acorn DTP Manual (Acorn)	£10
AASM Manual (Acorn)	£25
ANSI C v4 Manual (Acorn)	£25
DDE Manual (Acorn)	£25
A540/A5000 Tech Ref Manual	£65
A3000 Technical Ref Manual	£30
First Impressions (With Discs)	£32
Good Impressions (With Discs)	£31

PRINTERS

Citizen Swift 240 Colour	£259
Canon BJ-10ex / Turbo	£199/£240
Canon BJ-10 Ink Cartridge	£17
SheetFeeder for BJ-10	£57
Canon BJ-200	£299
Canon BJ-300 Bubble Jet	£339
Canon BJ-300 Ink Cartridge	£14
SheetFeeder For BJ-300	£99
Canon BJ-330 Bubble Jet	£399
HP DeskJet 500 / 500Col	£299/£389
HP DeskJet 550 Colour	£459
Refills for BJ10e/10ex (2 per Kit)	£16
Tractor Fed Labels 79mm by 49mm For 3½ Discs. Per 1000	£11

RAM UPGRADES

A3000 IFEL up to 2meg, this board can be upgraded to 4meg.	£55
A3000 4meg.	£129
A3010 Up To 2/4meg	£45/£129
A3010 4meg (Turbo, speed up your machine by 40% approx)	SOON
A3020 2 To 4meg	£79
A5000 2meg To 4meg	£89
A540 4Mb RAM.	£399

APPLICATIONS

Armadeus (Clares)	£59
Art Works (CC) (IN STOCK)	£135
Arc DFS (Dabs)	£22
ArcComm 2 (Logotron)	£59
ArcLight (Ace)	£41
ArcTerm 7 (Serial Port)	£59
Atelier (Minerva)	£69
Compression (CC)	£36
Desktop C v4 (Acorn)	£199
Drawbender (ICS)	£14
Desktop Thesaurus (RISC)	£19
EasiWord 2 (Minerva)	£55
Easy Writer (Icon Tech)	£159
Equasor (CC)	£39
Euclid 2 (Ace)	£55
Eureka (Longman)	£99
Flexifile Database (Minerva)	£87
Font FX (DataStore)	£10
Fontasy (ICS)	£22
Graphbox Pro (Minerva)	£109
Home/Club Accounts (Minerva)	£35
Hearsay 2 (Beebug)	£74
Image Outliner (Iota)	£79
Impression v2.17 (CC)	£129
Impression Junior (CC)	£76
Impression Bus Supp (CC)	£49
Investigator v2 (Serial Port)	£22
ISO Pascal Rel.2 (Acorn)	£89
Labeller (Arm_Tech)	£10
Magpie (Logotron)	£49
Mogul (Ace)	£16
Notate (Logotron)	£55
Ovation (Risc)	£109
PC Emulator V 1.8 (Acorn)	£99
Placard (ICS)	£9
Pinpoint (Logotron)	£89
PipeDream 4 (Colton)	£169
Poster (4Mation)	£79
Presenter 2 Hotlink (Ling)	£39
PrimeArt (Minerva)	£75
Pro Artisan (Clares)	£76
Render Bender v2 (Clares)	£105
Rhapsody v2 (Clares)	£49
REVELATION v2 (Logotron)	£109
Schema (Clares)	£98
ShapeFX (Data Store)	£9
ShowPage (CC)	£119
SmArt	£55
Snippet (4Mation)	£26
Splice (Ace)	£25
Studio 24+ (EMR)	£149
Tiler (Desktop Projects)	£10
Tween (Ace)	£35
TypeStudio (Risc)	£39
Vector (4Mation)	£79
Vox Box (Clares)	£49
Worra Cad (Oak)	£84

GAMES

Air Supremacy (Superior)	£17
Aggressor (Atomic)	£18
Alderbarran (Evolution)	£27
Arcade Soccer (4D)	£15
Ballarena (Eterna)	£16
Bambuzle (Arxe)	£19
Blitz (Arxe)	£17
Black Angel (4D) (NEW)	£27
BlowPipe (QD-VT)	£15
Break 147 & Superpool (4D)	£26
Bubble Fair (Eterna)	£17
Cataclysm (4D)	£20
Chess 3D (Micro Power)	£15
Chocks Away 2 (4D)	£22
Chocks Away Extra Miss(4D)	£16
Chocks 2 Compendium (4D)	£30
Chopper Force (4D)	£23
Chuck Rock (Krisalis)	£19
Cyber Chess (4D)	£39
Cyborg (Alpine) (NEW)	£20
Dreadnaughts	£27
Elite (Hybrid)	£32
Enter the Realm (4D)	£20
E-Type Compendium (4D)	£21
Fervour (Clares)	£19
Fun School 4 Under 5s/ 5-7 / 7+	£21
GODS (Krisalis)	£19
Gribbly's Day Out (C/A) (NEW)	£20
Grievous Bodily Arm (4D)	£19
Guile (Dream)	£22
Hero Quest (Krisalis) (NEW)	£24
HoledOut Compendium	£22
Hostages Superior Software	£16
Iron Lord (Cygnus)	£18
Ixion (Software 42) (NEW)	£21
James Pond	£20
J. Khan Squash (Krisalis)	£19
Karma The Flight Trainer	£24
Krisalis Collection	£23
Kerbang! (Eterna)	£16
Last Ninja (Superior)	£19
Lemmings (Krisalis)	£22
Lemmings EXTRA Levels	£17
Legend Of The Lost Temple	£19
Mad Prof Mariarty (Krisalis)	£16
Manchester Utd Europe (Krs)	£20
Micro Maths/English GCSE ea	£22
Micro French/German GCSE ea	£22
10 out of 10 Maths	£21
10 out of 10 English	£21
MIG 29 Super F/crum (Dom)	£33
NEBULAS (Krisalis)	£20
Nevryon (4D)	£19
Paradroid 2000 (C/Age) (NEW)	£20
Pandora's Box (4D)	£20
Pesky Muskrats (Coin Age)	£19
Populous (Krisalis)	£25
Provocator	£16
QUEST FOR GOLD (Krisalis)	£20
Real McCoy 1/2/3 each (4D)	£24
Saloon Cars Deluxe (4D)	£27
Starch (Dabs Press)	£13
Spheres of Chaos	£20
Scorpius (Arxe)	CALL
Sim City (Krisalis)	£29
Smudge The Spaniel 4/8 years	£22
SWIV (Krisalis)	£20
Thing of Darkness	£24
Turbo Challange 2 (NEW)	£22
Twin World (Cygnus)	£16
Waterloo (Turcon)	£19
Wolf Pack (Software 42)	£17
X-FIRE (4D)	£18
Zelanites (Micro Power)	£19

IF THE TITLE YOU REQUIRE IS NOT LISTED ABOVE, PLEASE GIVE US A CALL

NEW ACORN RANGE

A5000/HD80 MultiScan Monitor, 2 Meg RAM 80mb HD £1399

A5000-LC Learning Curve System with MultiScan Monitor. Acorn DTP, Ist Word+, Genesis+, PC Emulator, 80mb HD. + Game, etc. £1445

A50004MHD120 120meg HD 4meg RAM Plus MultiScan. £1599

A4000/80 (Home Office System) with ARM 250 Processor, Acorn Colour Monitor, 80meg HD. Software Pack Which Includes EasiWriter 2, Desktop Database. etc. £999

A4000/80 (Home Office System) With MultiScan Monitor. £1049

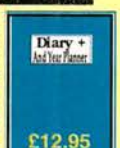
A4000HD80 System With Acorn Colour Monitor. £949

A4000/HD80 MultiScan. £999

A4 4meg Ram 60meg HD £1699

A4 2meg Floppy System £1399

The original Arthur operating system came with a diary application; unfortunately Risc-OS lost that very useful little utility. Diary+ offers you all that the original program had and more: you can browse and search through your diary, customise it to remember family anniversaries, and create diaries and print out planners for next year long before they are available in the shops. You can also print out your appointments for any month or year. You can use any Font, mark dates set alarms to remind you that you have an appointment. Diary+ has now been extended even further, you can now save Calendars or A3 planners out as Draw files and from there input any data that you require. Upgrades to existing Diary users is £5 + vat



A3010 Joystick Controller

Problems With your A3010 running older games in Joystick mode?. Well help Is now at hand with Arm_Techs Stick Controller you will find most of the older games will now run on your machine with no problem. £17+vat

Desktools, Desktop Toolkit

LOADS OF USEFUL UTILITIES

Trash Can Deletes files and transfers them into its own directory Ready To Trash. File/Find creates a data file containing the contents of your Discs/HDiscs Fast Find Routine. Vat Calculator. Window Stacker. Screen Saver With 10,000 Fractal Screens. File/Type/What/Type?. Clock. Floppy To HDisc Copier + Floppy Blanker + FreeSpace + Save Multiple Files To Disc As 1 File. 10 Page MemoPad. CFS/ADFS Switch. Function Key Info Given With Applications i.e !Edit etc. Application Launcher. Modules Show Rom/Ram + Allocated SWI Number And Name, Workspace Position, Base Number, Display All Module Info, SWI's And *Commands +Unplug/ Rmreinit Rmkill From Within Windows On Screen. Last But Not Least, What A Pair ?. £15 + vat

NEW ACORN RANGE FAMILY SOLUTION

A3010FS With ARM250 1Mb RAM 1.6 Floppy 2 Joystick Ports EasiWord Will Connect To TV. £424

A3010LC With ARM250, 2Mb RAM 1.6 Floppy Joystick Ports EasiWord, Genesis Collection, PC Emulator. Acorn Colour Monitor. £680

A3020 Floppy System With Acorn Colour Monitor, ARM250 2Mb RAM, 1.6 Floppy. etc. £749

A3020HD60 With 60Mb HD Acorn Colour Monitor 2meg Ram. £899

If Acorn MultiScan Monitor Required Please Add £50 To The Above Prices (Except For Family Solution)

ACORN POCKET BOOK £212 With Word Processor & S/Sheet.

If Acorn JP150 InkjetPrinter Required Please Add £215 To All Prices

A3010 ULTIMATE EXPANSION

MultiPodule 2 slot +HD space	£42
MultiPodule+20mHD+PSU 2 slot	£272
MultiPodule+60mHD+PSU 2 slot	£399
20meg HD for MultiPodule	£220
60meg HD for MultiPodule	£349
PSU+Fan+Buffer Kit (A3010)	£30
MicroPodule Scsi (Inc CDFS)	£99
MicroPodule Anologue	£29
MicroPodule Colour Digitizer	£79
MicroPodule HiVision Colour	£129
MicroPodule Midi	£49

My World Utilities Discs

These discs are top quality multi-layer drawings for use with the My World program. Ideal for Schools. MWOO1 & MW003 are a useful tool for help within the National Curriculum (KS 1/2)

Disc MW001 ANCIENT EGYPT	£12.95
Disc MW002 CHRISTMAS	£9.99
Disc MW003 ANCIENT GREECE	£14.95

A Site Licence is Available for the above (Call For Details)

SG001 EGYPT

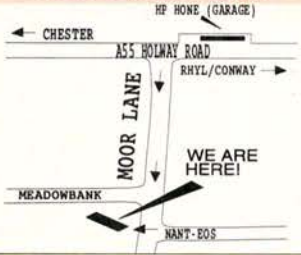
Studio Graphics

Top quality scalable Clip-Art. We have 9 sets available on various subjects. Discs are £8 each plus vat. (EXCEPT SG002/7/10) (Ideal For Schools)

Disc SG001 Egypt 100+ files on this disc (Colour)
Disc SG002 Flags of the world 270 files (Colour 2 Discs £15 + vat)
Disc SG003 General 100+ files (Colour & B/W)
Disc SG004 Christmas 100+ files (Colour & BW)
Disc SG005 General 100+ files (Colour & BW)
Disc SG006 Borders & Cartoons (Colour & B/W)
Disc SG007 Borders For Use Within Poster 100 Files £10 + vat
Disc SG008 Borders for use within Draw or any DTP Package
Disc SG009 Greek Clip Art (BW/Colour) £10 + vat

Where to find us

From Chester follow old A55 past Holywell until you see Moor Lane on your right, turn down Moor Lane, we are at the bottom (Big White Farm Gate). From Rhyl (As Above) but turn left into Moor Lane before Holywell



TERMS

UK residents add 17.5% VAT to all prices except books. Prices and manufacturers specifications subject to change without notification. Carriage is free (except for books/Software/Risc-OS 3.1) these will be shipped at cost. Goods offered subject to being unsold and/or available. Goods not offered on trial basis. If you require Next day delivery please add £12. Otherwise All goods despatched within 48 hours subject to availability. Restocking fee on non-defective returns.

Warped hum

LAST time I left you having safely completed the task set on entering the Smooth Warp in *Fish!* – namely, making a gold ring with the materials provided, having avoided the attentions of mad Micky and the explosive parrot.

Safely back in the castle, it's time to make a warped choice once again: This time you must enter the Small Warp, where you'll get shouted at by a beetroot-faced blighter to make some coffee or be fired. Sweet types, these so-called producers, aren't they?

What you actually need to do is exercise your powers of diplomacy and delegate. There's a bod called Rod loafing around who, if asked, is only too willing to make the coffee: This leaves you free to do a bit of searching.

There's a waste bin standing in the corner of the room, and it's well worth examining because inside is a ferric oxide tape: Take it. Now you should make a couple of moves in a westerly direction where you'll find a wooden door with a switch to the south. Pressing the switch will turn on the light in the room behind the wooden door.

A time-saving tip here is to enter *Open doors* (note the plural) since there is also a door to the north – killing two birds with one stone is almost always good practice when move counters are at work in an adventure.

Go south into the store room where you will find a tape storage

Magic at any price

LAST time, I left you on the Roof Garden in my notes on The Price of Magik and I hope you were beginning to grasp the principles involved in solving this entertaining adventure. I'm going to carry on retracing my footsteps for a little bit longer, but – be warned – I shall not spoonfeed you to the conclusion of this game: Lots more hints will be provided, but you will have some work to do as well.

From the roof garden you ought to wander NW to find a tower where a rope can be pulled, but it's entertainment value only. Much more important is the secret exit to be found there which leads up, and for that to be made visible you need the SEE spell referred to last time.

It leads you to the belfry where the bat is located. This bat is useful but you may not find it easy to grab unless you have collected the cross from the herb garden.

Once in your possession, the bat is useful for scaring away the bloodworm in the watery tunnel but you'll need to have collected the DETect spell, for which the cross is focus, first.

The marble hall – southwest of the roof garden – leads (if you then move west) on to the once-good room where you can make friends with the ghoul. It can be ignored, or it can be killed: It's up to you to decide.

The little landing, near the roof garden, also leads to a musty hall – where a tapestry is stored: This will provide you with a spell, once you have brought it to life by using the BOM spell, so cheer that cherub up pronto.

The BOM spell can also be used to bring certain pictures to life: If you want to have a little fun, cast BOM at the picture of Myglar which is in the hall west of the alcove. If you want to feel good, take the bones located in the bone chamber (NW of the hall) and bury them in the herb garden.

If you go down the stairway just off the landing you come to a hole. South twice from here and then NE takes you to an anti-chapel off which is an alcove. It is here that the Red Moon is to be found. This is an important tool in your quest because taking it can make you feel young again.

However, it must be use with care, since you can only do this twice. You need to do some strategic planning here – and you also need to cast FLY at it to find out what's hidden underneath.

South of the anti-chapel is a forbidding location – Tentacles – inhabited by a Wight. This Wight is a right little so-and-so and needs to be given a wide berth: It ain't nohow friendly and it ain't exactly destructible, either.

If you go south from the junction near the anti-chapel you come first to the yellow river and then (SE) to the rock walled room. This contains a picture of Stonehenge: Casting BOM at the picture will give you access to a whole series of locations that are not otherwise revealed.

South of the rock walled room is a scullery inhabited by a skeleton (wot, no cupboards?) who can be killed if you fancy snitching its shield to use as additional protection. East twice from the rock walled room brings you to the entrance hall again.

The postcard from Transylvania is just a bit of fun but the pendulum of the grandmother clock is useful: It is the focus for the DOW spell which will tell you if the target has magic properties or not.

Just off the entrance hall is an elm corridor containing something definitely unfunny in the shape of a werewolf. The shield helps here, the ZAP spell will slowly overcome it, but the best defence of all is – naturally – the wolfsbane from the roof garden. And there, I'll leave you for now.

To be continued...

OUR

bin. It contains a couple of tapes: One chrome and one metal. If you enter the plural command *Get tapes* you can once more economise on your moves, even though you'll be told you've already got the ferric oxide one.

Two moves north will take you into the Secondary Control Room, where you will be told that there is an important button next to the door which is now south of you. The button will announce that it says *click* and nothing else will happen – worry not.

You will also see a cassette player, a small cupboard and an amplifier. Opening the cupboard will show that it contains a tape head cleaner – so it obviously makes sense to use it on the cassette player before trying to play the tapes.

Examination of the amplifier will show that it has a fader with response levels up to 11. It's currently set to zero, so again something has to be done before you can hear the tapes you have purloined.

I set the volume to 5 before setting myself the task of discovering what the tapes could tell me. The answer turned out to be a coded clue.

There's no point in my quoting the number I saw, since it changes every time you play.

All the time I was doing this I was being continually harassed by the producer for more coffee. This turned out to be more of the move counter ploy and I was eventually dumped for dawdling. Fortunately I had saved my status and went back to work more economically.

The aim of this section is to have you break into the filing cabinet north of the lounge. So long as you enter the number discovered on playing the tapes you'll have no trouble.

Inside the cabinet is a spindle: Take it and the section is completed and, after a near encounter with the Fins, you are warped back to the castle.

To be continued...

Hatter's Helpline

I MENTIONED briefly last time that the command *RMKILL SHAREDCLIBRARY helped Antony Moss to run the Magnetic Scrolls adventures **Corruption** and **Jinxter** now that he has upgraded to Risc OS 3.1. and I hope that was of help to readers.

Having recently upgraded myself, I am on the lookout for problems when I can spare time to rework my way through old adventures. I loaded **Wonderland** successfully and got through the first few moves without trouble and can report the same with **Fish!**, **The Pawn** and **Guild of Thieves**.

But I haven't yet had time to play them all right through and so I shall be glad of any information – and possible cures – of adventures which have fallen foul of the changes Acorn have introduced to Risc OS 3.1.

Finally, my thanks go to Ray Waters for a solution to **Spellbinder** and to Richard Forster for a solution to **Bureaucracy** which will help me to help all of you.

For Elitists

THE postbag continues to bulge and I continue to pass on interesting comments and to deal with queries as best I can: It's a slow process and people need to be patient. I'll see if I can devote a whole column some time in the future as a way of catching up, though that will entail deprivation for adventure fans.

James Nott has been bashing along at Elite for a number of years on a Master 128. He wants retro rockets, the cloaking device and the ID system. Unfortunately it means he wants another make of computer since these are not available on the BBC Micro version, though something like the ship with a cloaking device is randomly reported by a number of readers. Again, two Missions is the limit for the BBC Micro.

Alan Medcroft has written a long letter, with a (corrected) entry for the Arries-Diquer Rally competition. This gives me the excuse to say that the winner will be announced in the August issue of *Acorn Computing*, so there's just time for you to get an entry off. The prize is a specially monogrammed Elite sweatshirt.

Alan chides me for not mentioning that the GalMed Mission is triggered in Galaxy Sol – and he reckons that Cr. 2000 is not too bad a reward. He also asks how I know I am Elite status 10 times over on the BBC version: Simple, once I made it to Elite I started again from scratch 10 times.

He wants to know who I really am: Quite a lot of you have figured that one out. Alan, I am mentioned by name on the scrolling message giving the credits in ArcElite.

ArcElite missions are unique to that version and do not repeat the BBC Micro ones and the pause button for ArcElite is f12. So I don't know which version Alan is referring to when he says that another magazine offered a cheat mode when the game is paused.

Since achieving Elite status, Alan reports meeting several Sidewinders behaving in an antisocial manner. When he remonstrates with them (OK, blasts them to bits) he gets no reward and is rapped over the knuckles by GalCop. This is a new one to me, has it happened to anyone else?

Finally Alan offers a tip: Crazy Craft can be shot with impunity even though they are listed as likeables. He also wonders about putting ArcElite files on the cover disk – start of missions and the like.

I'm not sure of the copyright situation, personally, but I am sure it would take away half the fun of getting a higher status. The offer of a Docking Computer facility remains open: Clive Gringras has provided me with a file which I can put on to any disk you care to send me, provided you also send the cost of return postage.

At the time of writing, I have not yet seen a copy of Elite II, but I can make a few things known to you. In an interview in a German computer magazine David Braben said that a PC version should be launched early this year.

The only other computer catered for is the Amiga, so unless someone does the public-spirited thing, and works on a conversion for the Arc in the same way that Warren Burch and Clive Gringras did for Elite, we shall not see it.

However, I just happen to have a 386SX PC, and so once I can get my sticky paws on Elite II, I'll give you an account of it since some of you may well have PC cards installed in your Arcs. I'll also try running it with my PC emulator (version 1) on the Arc to give some comparison.

You will have to do some work as well

SPEX

For the Acorn Archimedes range of computers

3D Environment Design Software
For all Primary and Secondary Schools

- *2D plan. 3D view*
- *Pictograms*
- *Barcharts*
- *Simple spreadsheet*
- *'Drawfile' exporting*
- *Drag & Drop editing*
- *Cut out and make a plan model*
- *Four home environments - Kitchen, Bathroom, Bedroom and Lounge.*
- *Worksheet pack and Clip Art disc*

FREE SITE LICENCE INCLUDED!

Primary site licence £59.00 Secondary site licence £99.00. Official orders welcome. Package includes: SPEX disc. Initial environment disc. Project, worksheets and disc. ExpLAN UK Limited. Freepost. TAVISTOCK. Devon. PL19 9BR. Tel/Fax 0822 613868

Gnome Computers Limited

25A Huntingdon Street, St Neots, Cambs, PE19 1BG
Tel./Fax: 0480 406164 E-Mail: support@gnome.co.uk

X Window System R11.4

This software package, developed in association with Acorn Computers, converts a RISC OS based Archimedes into an X Terminal. The software will allow communication with X clients over Ethernet or Econet. Graphic support includes both the state machine G8 and Computer Concepts Colour Card.

X Software	£199
Complete Colour X Terminals from	£1150

Archimedes upgrades

External SCSI 200MB H/D + Acorn SCSI Card	£990
External SCSI 1.2GB H/D + Acorn SCSI Card	£1999
External 150MByte SCSI Tape Drive	£650
External 8GByte SCSI DAT Tape Drive	£1500

Transputer & i860 Systems

Gnome Computers offers a complete range of transputer and i860 boards to fit into either RISC OS or RISC iX based Archimedes machines. Prices start at £1385 for a single 10 MIP, 2 MFLOP transputer system including a parallel FORTRAN-77 compiler.

UNIX & Network Specialists

Solid Scanning

Why restrict yourself to scanning flat paper? With the revolutionary Iota Image Scanner you can grab a picture of just about anything that will fit on the A4 base.

The scanner's radical design combines a rotating mirror, high quality lenses and CCD chip technology in the scanning head to produce a high quality, easy to use and robust scanner.

Because the scanning head is mounted above the base the Iota Image Scanner is ideal for scanning solid objects – just place the object on the base and start scanning.

With the Iota Image Scanner there's no physical contact and no lid to press down so delicate objects can be scanned with ease. There's no need to break the back of a book to copy a page and a flower can be captured without any damage.

And there are no short cuts with the Iota Image Scanner, it has a full mono resolution of 300 dots per inch with full colour upgrade and fast parallel interface options. With the fast interface it takes just 25 seconds to produce a mono scan and full colour is available in 90 seconds.

With the Image Scanner software – called Image Display – you can change the resolution and contrast of the scanner, plus you can zoom in on any area you want to see in more detail.

Image Display has optional rulers for both axes that match the rulers on the scanning base plus you can cut any oprtion of the scan and export it separately to the rest. Scans can be saved as standard Acorn sprite files or as industry-standard TIFFs.

Don't miss out on this great opportunity to buy this scanner at our exclusive knock-down price, it's too good a chance to miss this VAT free offer.

Mono (serial)	£399 + VAT
Mono (parallel)	£498 + VAT
Colour (parallel)	£739 + VAT

Acorn COMPUTING

ORDER FORM

Please send me the following:

	Product	Price	Code
☐	Mono (serial)	~~£399~~ Was	2350
☐	Mono (parallel)	~~£498~~ Now	2356
☐	Colour (parallel)	£739	2357

I wish to pay by:

☐ Cheque/Eurocheque enclosed made payable to Europress Direct
☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

POSTAGE: Add £10 to all UK orders

No: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ Expiry Date ☐/☐

Name..... Signed .....

Address .....

.....

.....

..... Postcode.....

Send to: Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB

☐ Please tick if you do not wish to receive promotional material from other companies

Order at any time of the day or night

PHONE ORDERS: 051 357 1275. FAX: 051 357 2813 GENERAL ENQUIRIES 051 357 2961

Don't forget to give your name, address and credit card number

Book club

John Allen takes a look at three books to make the life of a 32-bit owner that shade easier

Mastering 1st Word Plus by Anne Rooney

1ST Word Plus is getting a bit long in the tooth now and – despite being published by Acorn – does not follow all the Risc OS conventions.

Nevertheless, it was supplied as part of the original Learning Curve pack, and is probably the most common word-processor on Risc OS machines. This comprehensive book is presented in an easy to follow tutorial style, and is a good companion for users who find the manual difficult to follow.

PRODUCT SPOTLIGHT

Price: £13.95
Supplier: Dabs Press, 250 Leyland Lane, Leyland, Preston PR5 3HL.
Tel: 061-773 8632

Budget DTP on the Acorn Archimedes by Roger Amos

BUDGET DTP shows how to produce respectable desktop published documents using only Acorn's Edit, Draw, Paint and Risc OS Outline Fonts. All come free with Risc OS 3, though the Outline Font Manager is an extra for Risc OS 2 users.

This book could also be called *How to make full use of Draw* as that is the application which is used to assemble the whole document. True, the method is a little more difficult to use than a proper DTP package like Impression, but it does work.

The principles of good layout and how to achieve effects such as dropped shadows, pie charts and tables are explained, as well as how to use different types of printers.

I am not sure that the twenty page appendix on Risc OS basics is necessary, but this book is recommended if you only occasionally need to DTP a document and don't think that it is worth buying a specialised package.

PRODUCT SPOTLIGHT

Price: £12.95
Supplier: Dabs Press, 250 Leyland Lane, Leyland, Preston PR5 3HL.
Tel: 061-773 8632

Wimp Programming for All by Lee Calcraft and Alan Wrigley

THIS is a more advanced book than the one from Martyn Fox. It is written in a more formal style and covers much the same subject areas, but in greater depth. It, too, concentrates on using the Basic language, but is less tutorial in its style with 188 pages crammed full of information.

This book can be used in place of Acorn's Programmer's Reference Manual for the majority of users, but it requires careful reading to grasp some of the finer points.

Subjects covered include: Windows, wimp polling, error handling, icons, menus, redrawing windows, wimp messaging, saving and loading, templates, printer drivers and outline fonts.

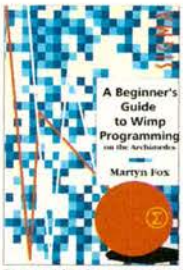
The book has been developed from a series of magazine articles by Lee Calcraft, but they have been updated to explain additional facilities available in Risc OS 3. Risc Developments publish a disk for £4.95, containing all the examples, as well as useful shell procedures.

I can highly recommend this book for programmers familiar with other programming environments, wanting to learn how to write programs to multitask within Risc OS.

PRODUCT SPOTLIGHT

Price: £12.95
Supplier: Risc Developments, 117 Hatfield Road, St Albans, Herts AL1 4JS.
Tel: 0727 40303

A Beginners Guide to Wimp Programming by Martyn Fox



AT LAST, an easy-to-follow guide to writing Basic programs which run using windows. This book starts by assuming reasonable Basic programming knowledge and, by simple examples, shows how to write programs which will multitask.

The examples culminate in a shell program which can be used as the basis of any application, with a wide range of routines to take the drudgery out of writing an application. To save typing, all the software in the book is available on a separate disk for £3.95.

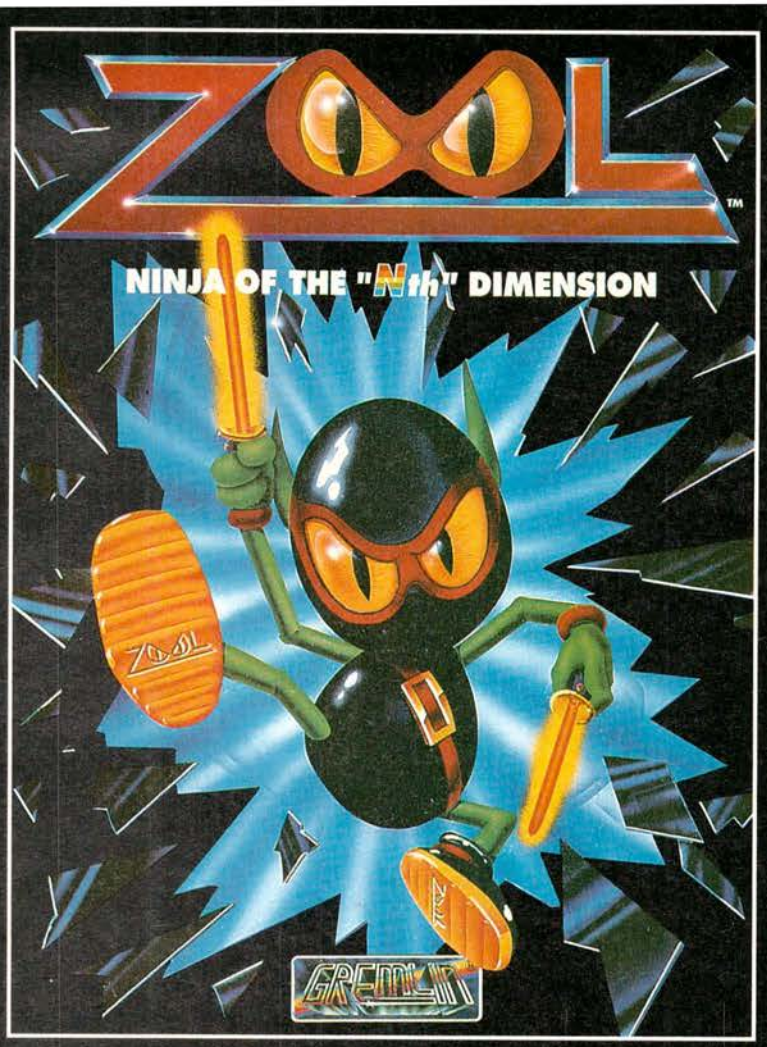
Areas covered include: Menus, dialogue boxes, loading and saving files, error handling, icons and opening and redrawing windows.

Until recently the four-volume Programmer's Reference Manual from Acorn was essential if you wanted to write wimp programs. This book doesn't replace it, but it does give an easy introduction, and enough knowledge to cope with most situations.

PRODUCT SPOTLIGHT

Price: £12.95
Supplier: Sigma/Wiley, Bollins Lane, Chichester, Sussex PO19 1UD.
Tel: 0243 779777

THE manuals accompaning the Acorn machines are okay but they don't really go into any depth. Here's a selection of books that take you into different aspects of your machine and explore its possibilities much more thoroughly.



NOW AVAILABLE ON ARCHIMEDES

"Zool is a massive arcade adventure with stunning gameplay."
DAILY MIRROR

"A great game and a zippy personality."
SUNDAY OBSERVER

"Zool is very impressive. It's fast and colourful with lots of twists, turns and things hidden from the player."
DAILY STAR

"If you're a platform fan, you're not going to be disappointed, Zool is fast, action packed, challenging and highly addictive."
THE SUN

"Zool is, quite simply, a stunning game."
BBC RADIO 1

"Spectacular, fast and smooth animation."
THE TIMES

RETAIL PRICE £25.99

GREMLIN

GREMLIN GRAPHICS SOFTWARE LTD., CARVER HOUSE, 2-4 CARVER STREET, SHEFFIELD S1 4FS.

ELECTRONIC SOLUTIONS

DETOUR The definitive file redirection and virus protection package that lets you run your applications and games from the media of your choice. *"This is a utility which is definitely worth adding to anyone's library" - The Micro User, May 1992* • £19.95 + VAT

Enigma The ultimate filing system combining compatibility, high speed efficient compression, and FULL passworded data security. The only filing system for schools, business and anyone who wishes to protect their data • £59.95 + VAT

Multi-tasks **ANY** programs that don't normally run under the Desktop, from games to machine emulators. The only system of this kind available, adds virtual multi-processing, and true multi-tasking, to your machine. You can even save a task in a frozen state, and reconstitute it later on just where you left off... • £34.95 + VAT

• NEW! *WimpShell* - the easiest possible way to make your programs WIMP-compliant • £14.95 + VAT

Professional Tools Pack 1

A suite of easy-to-use, powerful utilities for the discerning **RISC OS** user. *"RMATrap... is worth the price of this package" - Acorn Computing, October 1992* • £14.95 + VAT

Control - The only package that offers the universal standardised **RISC OS** joystick solution everyone's been waiting for • Software: £11.95 • Hardware: £17.95 • Ultimate Control Stick: £30.95 (Please ring for the latest availability and discount scheme details)

Please enquire for full details on these or our other products and demonstration discs. Official orders welcome. Please add £1.00 for postage and packing (Overseas £2.00)

ELECTRONIC SOLUTIONS

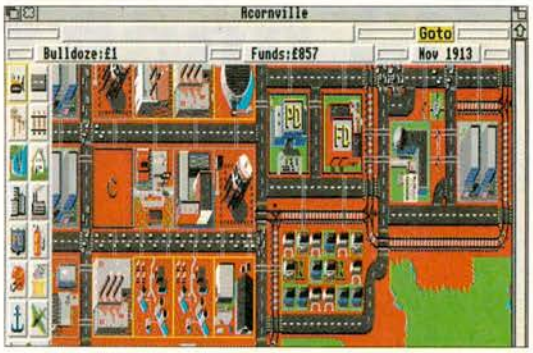
Telephone: (0443) 777709 Fax: (0633) 876413 / (0443) 777709

208 High Street • Treorchy • Mid Glamorgan • South Wales • CF42 6AS

ACE

SimCity

...be your own boss



● *A nasty bit of traffic congestion...*

...and the overview

PRODUCT SPOTLIGHT

Price: £34.99
Supplier: Krisalis Software, Teque House, Masons Yard, Downs Row, Moorgate, Rotherham, Sth Yorks
Tel: 0709 372290

SIMCITY has been around a long time on other machines and around two years on the BBC Micro. But now you can build and run your very own city on a Risc OS machine as well.

The idea is to balance all the factors that affect the growth of a city so you can encourage its expansion without damaging the people or the environment – well, at least not too much.

SimCity is a Risc OS-compliant program so runs on the Desktop alongside any other program you can fit in memory with it. It occupies 640k so will be comfortable in a 1Mb machine. Loading is just a matter of double-clicking the icon.

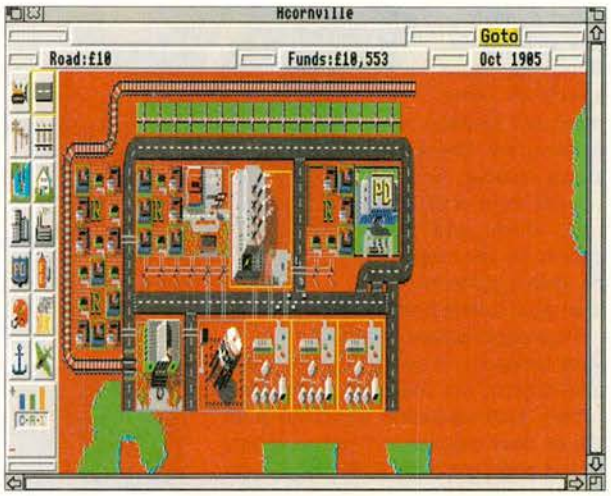
As it runs on the Desktop all the viewing and control is done via windows, the two main ones being Edit and Map. The program advises you to alter to Mode 12 for speed, but I didn't notice any real problems running in higher modes.

The Edit window displays a small portion of the map and you can change features in this area. All the different object types – like industrial areas, rapid transport system and roads – are animated which makes a wonderful difference.

The colour selection is not very nice – it looks very much like the BBC Micro version – but has been chosen to conform to the Desktop colours. An option to select others would have been appreciated so that the browns could be brown.

To build your city you have to zone areas for a particular type of development – there are three main zone types plus other *connections* and services. The zones are residential, commercial and industrial, connections are road, rail and power while services include power stations (coal or nuclear), police, fire brigade, seaports, airports, sports centres and parks.

To place an object you need to bulldoze the land you want to develop then click in the toolbox for the object you want. A box appears under the pointer which shows where the object will go when you click to place it. The map window allows you to change the area displayed in the Edit window but provides other overall views.



● *An early attempt – people hate living next to power stations*

On to the basic city layout you can overlay demographic information such as crime rate, land value, police and fire coverage.

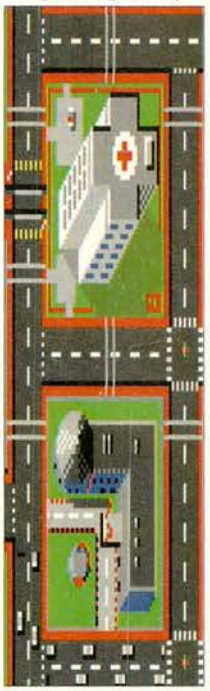
It will display the power grid showing any areas that aren't connected to a generating station. The transportation display shows roads and rail lines and you can display traffic levels to identify congested areas. These are displayed as little cars moving along the road in the edit window.

The Graph window is used to show how factors have changed over time. You can display population, crime rate, cash flow, industrial and pollution, and switch any one of these lines on and off to compare how they've changed.

The Budget window is quite important – it is automatically displayed at the end of every year and allows you to set how much money the services will get and the tax level for the coming year.

An auto budget option just keeps the same values without asking you for them. This is useful if you want to have the program run unattended for a long while.

Finally you have the Evaluation window which shows such things as Public Opinion – once I managed to get 83 per cent of the population thinking I was doing a good job. It also shows what people are most concerned about, such as traffic congestion or the crime rate.



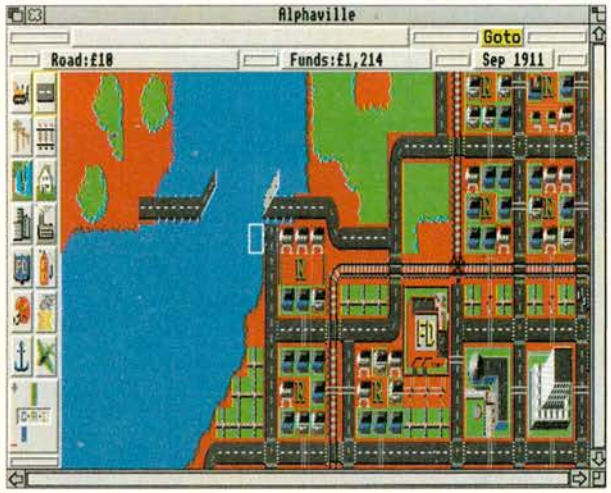
● *Some residential areas convert to hospitals*

Other options include the ability to set up the game to allow or disallow certain disasters, such as floods, earthquakes, air crashes, tornadoes and so forth.

There is a preset selection of scenarios where you must reach specific end conditions. In Dullsville you must make it big, there's flooding in Rio, quakes in San Francisco, you have to rebuild Hamburg, solve Bern's traffic problem, deal with Detroit's crime wave, rescue everyone from a nuclear meltdown in Boston or save Tokyo from a large reptilian monster.

SimCity for the Risc OS machines is superb – I was addicted to the BBC Micro version and I'm heading that way with this one.

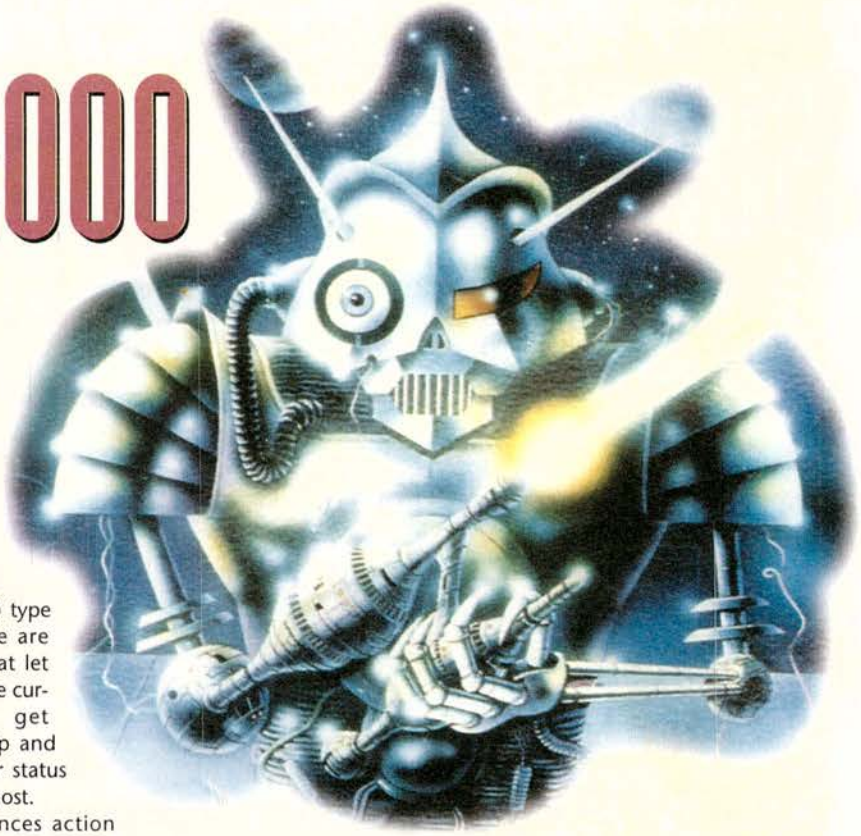
Steve Turnbull



● *The opening bridge is a nice touch*

Paradroid 2000

...trash the fleet



PRODUCT SPOTLIGHT

Price: £25.99
Supplier: Coin-Age, 1st Floor, 23 Cooper Street, Nelson, Lancs BB9 7XW.
Tel: 0282 692688

SOMETIME in the 24th century, five spaceships full of battle robots have gone to meet the enemy. Unfortunately the enemy has moved in and the robots have been taken over, which means that the ships now have to be recaptured from their own assault force.

The way this is done is what makes Paradroid quite a bit different from most combat games. As a Mark II Influence Device you are beamed aboard each ship in turn.

The ID is a floating hemisphere with a low-power weapon and is no match for most of the robots aboard.

However, it can attach itself to any other droid, take over its systems (maybe) and then use it as a sort of host body to attack the others. The idea is to start with a robot that you have a chance of defeating, take it over and then use it while you look for the next model up the range.

At first you have no idea which is which (unless it shoots at you with something devastating) but you soon learn to tell the difference between a low-level tea dispenser and a sentinel battle machine. Trying to take over the wrong one can be slightly fatal.

Combat takes place on nicely detailed deck plans of the ships. Each kind of robot is distinctive in top-view, with its own speed of movement and (usually) type of weapon. There are ship's consoles that let you see more of the current deck and get details on the ship and on droids of lower status than your current host.

Paradroid balances action with tactical and strategic play. Walls and objects can hide you from some robots. Lurking beside doorways pays off, as does trapping one-armed robots where they can't get a line of fire on you.

Enemy droids have tactics of their own and tend not to stand around to be shot at. Beyond that you need to plan your route through the whole ship so as not to meet droids you can't handle.

The other side of Paradroid is the transfer game – when you take over another robot. This is practically a second game in itself, and one that needs quick thinking and tactical play.

To transfer you get a picture representing a circuit where you must set the inputs to make the boxes in the centre turn your colour. The program controls the other side and you only get a few seconds.

The greater the difference in power and status between your current and intended hosts, the more the game is stacked against you.

Paradroid has no save option in the normal sense. Only by completely clearing a ship do you get the option to bypass it on future runs and start with the next. This means that you have to take several attempts at each ship, starting at the beginning each time.

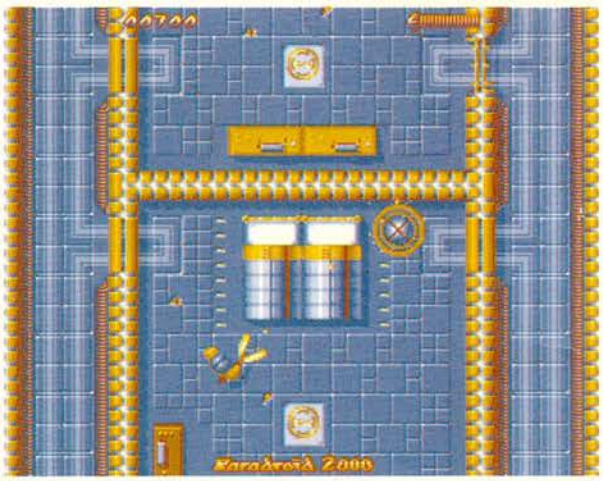
At first you make what amounts to suicide runs to find out where the enemy lies.

To speed things up you can turn off the transfer game which also lets you take over more powerful robots. However, you can only move on to the next ship after you've cleared the current one with the transfer game on.

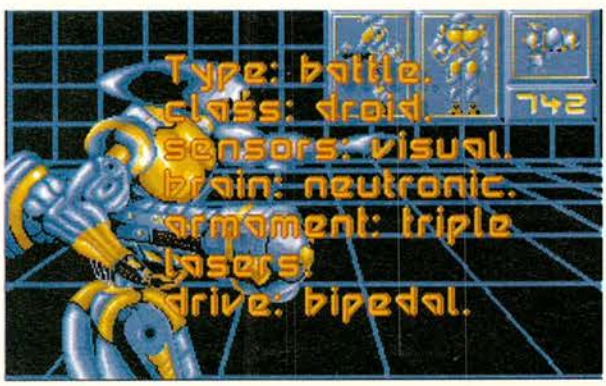
Paradroid has a lot of variety and a number of features that put it well beyond a simple shoot-'em-up. The element of tactical play is strong and the transfer system is an intriguing little game in itself.

This is quite a challenging game with enough variation to make it hold the interest.

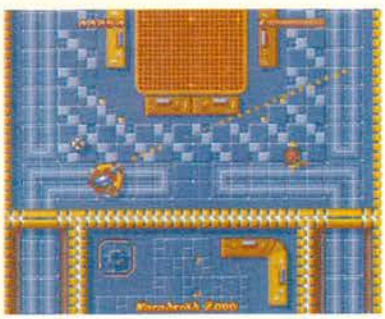
Keith Martin



● *This one has rapid fire machine gun and endless ammo*



● *Information screen on a powerful battledroid*



● *A lumbering monster, the two-legged droid is faster*

TechnoDream

...double blaster

TECHNODREAM is advertised as the long-awaited sequel – but not what it's a sequel to ... well, this one is by the same author as Nevryon, so you can work it out for yourself.

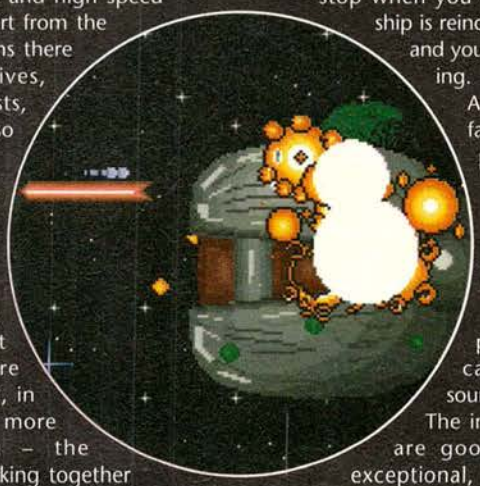
The scenario has you as the pilot of the V7 Terrastormer against the aliens and that's about it – no real attempt at rationalisation and why should there be? After all this is a shoot-'em-up.

It has a lot of similarities to Nevryon: It's a horizontal scroller with lots of nasties doing lots of extremely awkward and horrible things to try to blow you out of the sky.

All you have to do is fly from one end of the 18 levels to the other blowing up everything you can and avoiding everything else, plus their numerous missiles, laser zaps and little fireballs that fill the sky and slowly absorb your energy.

At the end of each level is the *big baddy*. The scrolling stops at this point and you just have to throw everything you've got at it and hope you get it before it gets you.

Luckily there are tokens to pick up as you go along and these provide you with missiles, the spectacular ram (vital for completing levels), backward facing lasers, mines and high speed zapping. Apart from the extra weapons there are extra lives, energy boosts, shields and so on.



The most important improvement is the two player option which makes it much more exciting and, in some ways, more challenging – the effort of working together can be quite exhausting, especially when you think that the other person should have zagged when he zigged.

Of course, you don't have to work together you can just try and hog all the tokens yourself. Because of the two-player option the game doesn't stop when you get killed – the ship is reincarnated instantly and you just keep on flying.

As well as all the fast action there's plenty of sound and, unusually for this type of game, continuous music too. The control options are plentiful and you can turn all the sounds down or off. The in-game graphics are good though not exceptional, and one of the start up screens is quite dire, but that doesn't affect the gameplay.

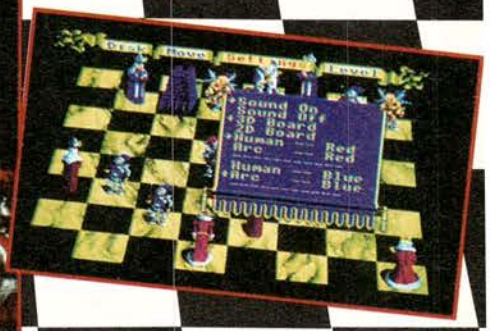
If you want to blow things up lots, this one's for you.

Geoff Brown

PRODUCT SPOTLIGHT

Price: £24.95
Supplier: Superior Software, P.O. Box 6, Brigg, S. Humberside DN20 9NH
Tel: 0652 658585

Battle Chess™



£29.99
ACORN 32 BIT

The most challenging game on earth comes to life in Battle Chess. An entire medieval world at war is reflected on the checkered field.

Everyone who's ever had a knight take a pawn has seen that capture as more than one piece replacing another on the board. In players' minds, the bold knight, resplendent in his armour of silver or ebon, sallies forth and slays the foul footsoldier. Combat, mortal combat, is the heart and soul of chess, but this aspect of it can only live in the mind's eye... until now!

Lots of computer chess games capture the basics of chess. Only Battle Chess brings chess to life by combining a magnificent chess logic system with colourful, humourous, and dramatic three-dimensional animations.

KRISALIS SOFTWARE LTD.

Krisalis Software Ltd. Teque House, Masons Yard, Moorgate, Rotherham. S60 2HD.

HOW TO ORDER

LETTER/FAX
SIMPLY SEND A LETTER GIVING DETAILS OF THE GAME(S) YOU WOULD LIKE, YOUR NAME AND ADDRESS, AND PAYMENT BY CHEQUE, POSTAL ORDER, OR BY GIVING YOUR ACCESS OR VISA CARD DETAILS INCLUDING THE EXPIRY DATE.

IMMEDIATE DESPATCH
ALL ORDERS ARE DISPATCHED BY FIRST CLASS POST IMMEDIATELY. CARRIAGE IS PAID BY US IN THE UK. (ORDERS FROM OVERSEAS ADD £3 PER PRODUCT).

FULLY GUARANTEED
IF FOR ANY REASON DISKS SUPPLIED BY US BECOME FAULTY WE WILL REPLACE THEM STRAIGHT AWAY SIMPLY RETURN THEM TO US ENCLOSING YOUR NAME AND ADDRESS.

ACCESS & VISA ACCEPTED

Access VISA

TEL: 0709 372290
FAX: 0709 368403

You cheat!

...screen play made easier

PRODUCT SPOTLIGHT

Product: The Hacker
Price: £5
Supplier: DoggySoft, 7 Blackhorse Crescent, Amersham, Bucks HP6 6HP

Program: The Games Wizard
Price: £30
Supplier: Leading Edge, Northwood House, North Street, Leeds LS7 2AA
Tel: 0243 531194

THE Games Wizard and The Hacker are hacking programs. The root idea behind both is to stop the execution of a game – triggered by a special key sequence or combination – and then allow the user to examine the victim's code and data areas.

A fundamental operation common to both is the search. In The Hacker, searches may be performed on words, bytes, strings, ARM mnemonics and SWIs. Searches result in lists of addresses which can be examined at will.

Both programs allow these lists to be subsequently used as the source for another search, and this technique forms the basis of a good deal of hacking.

For example, to discover the address of the *number of lives remaining* counter you would typically perform a word-based search on the number 3 (assuming the player has three lives). A large list would result, which is then stored. The player then goes off and gets killed and performs another search on the number 2. You can then deduce that an address common to both searches is likely to be the target counter.

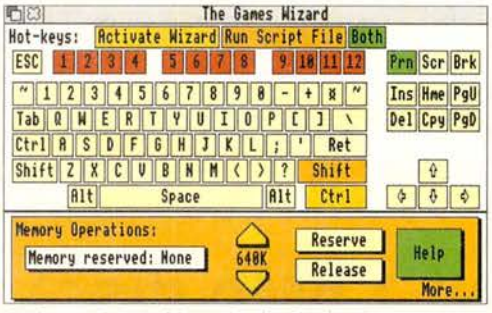
The Hacker has a good disassembler built in, with the ability to alter addresses as well as view them. Once you have successfully hacked a game The Hacker will allow you to create a module which can be loaded at the same time as the game itself.

Key combinations can be set up which the module intercepts and performs the various hacks on the victim game. This means that games need not be repeatedly hacked, merely create a module and Bob's your auntie. You can then send the module to friends or PD libraries.

The other hacking program, The Games Wizard, is very much along the same lines as the Hacker. Similar facilities exist, but you are expected to have less technical know-how.

There is no disassembler and the searching facilities are less flexible. Once found, hacks can also be saved, but in the format of a script file. This text-based file contains all the information that the Wizard needs to perform a single hack.

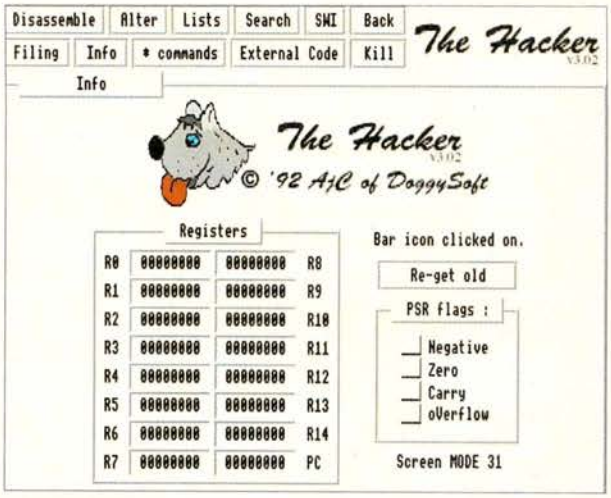
Many scripts are provided on the disk – 38 in all – so the novice user will immediately benefit. The Games Wizard allows you to select Apprentice mode which concentrates on running the existing scripts and assumes no technical knowledge at all.



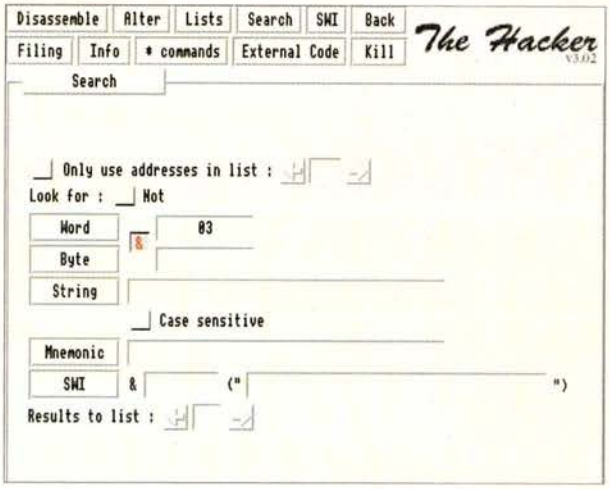
● *Games Wizard is easier for the beginner to use*

Both programs are prone to crashing but that's to be expected considering what they're doing. They perform a task which is rather naughty and so cannot be treated as reliable. Save your other work in the desktop before running them – or prepare to lose it.

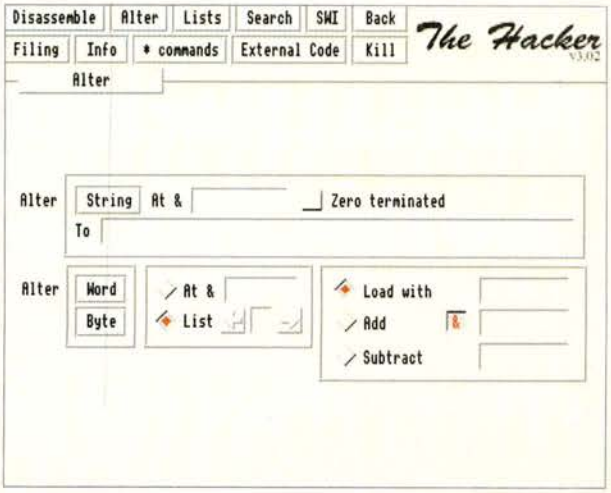
Hac Man 2



● *Entering Hacker for the first time*



● *Using the search option to locate the lives count*



● *Setting up to alter the value of a memory location*

Summing up

The Hacker feels more like a programmer's tool: It's flexible, direct and goes straight for the throat, while the Games Wizard is definitely less technically oriented.

Parts of me prefer the Games Wizard's method of saving successful hacks – text files can be published in magazines. On the other hand, the small modules created by The Hacker occupy hardly any space and remove the need to load the main program every time you want to play a game.

The Games Wizard, at six times the price of The Hacker puts itself at a severe disadvantage when comparisons need to be made between the two programs, but if you're not into the technical stuff it may be a price worth paying.

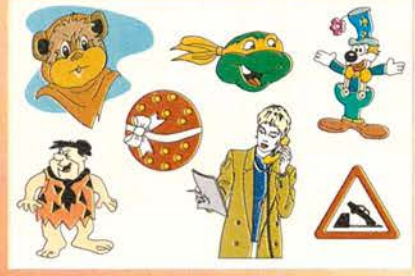
100 OUTLINE FONTS FOR JUST £10

FONTS ONE, 50 Fonts, many with Italic+Bold Styles

Acorn
STENCIL
SPLODGE
TECH
BALLOON
Battlefield
STOP
Cybernoid
Garamond
Revue
Aachen
Cooper Black
Type Writer
Gangster Bit
Buckingham
Park Avenue
Brush Script
Free Style
Old English
ZapfChance
University
Italic
Palatino
Jotter
Ladybird
Milton Keynes
Oxford
Swizz
Trio
Baskerville
Benguiat
FritzQuadr
Jayne
Shamrock
Columbia
ALGERIAN
Octopuss
THEATRE
SOLID
Σψμβολ

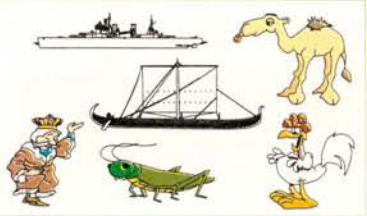
FONTS TWO, 50 more Fonts, with Italic+Bold Styles

POST CRYPT
Цириллиц
CAVEMAN
DEUSEX
Future
LED Style
PONCHO
Ricksaw
New
TERMINATOR
STRONGMAN
Gordon
ESPHERES
METRO LINER
SNYDER
Fox Script
FLINTSTONE
Psychadelic
Neavaresse
Andromeda
Architect
Chasline
Chinese
Charlie
Canaith
Heidelberg
Thalia
Murder
Oregon
Informal
El Garrett
Alison
Square
EDDA
Black
Caligula
Jackson
Lager
Daytona
BUBBLE
China Town
Borzoi
TOY
Kathlita
Jumbalaya
Windsor
Video
Phaedrus



The Clip Art packs below consist of High Quality !Draw files which can be used with DTP packages;

CLIPS 1: 290 pieces of cartoon characters.
CLIPS 2: 160 pieces of miscellaneous fun clips.
CLIPS 3: 180 pieces of miscellaneous serious clips.
CLIPS 4: 120 clips, Sport, Boats, Helicopters and US Military Planes.
CLIPS 5: 100 clips, Holidays, Shopping, Food, Houses and Kitchen.
CLIPS 6: 180 clips, Animals, Fish, Birds, Decoration.
CLIPS 7: 210 clips, Males & Females, Fills, Books and misc.



PRICES: A Single pack costs £6, but if you buy more than one, they all cost just £5 each.

DETAILS: This advert features DTP Packs, each pack consists of 3 to 4 discs. The software on them is a mix of both PD and copyright material, it will work on any Acorn RiscOs machine.

CATALOGUE: Skyfalls full catalogue and demo disc of Public Domain software is available for just £1.

Skyfall

PO Box 2220, Birmingham, B43 5RZ. 021 358 7078.

Archimedes Hints & Tips Compendium

Over 1,500 Hints and Tips about various aspects of using the complete Archimedes range of computers.

Over 200,000 words on disc for ease and speed of reference. Available in Edit format on 2 x 800Kb discs. (Paper copies, including diagrams, available as an extra.)

Price: £13 inclusive (or £11 on 1.6Mb disc)

Send a cheque for £13 (or £11) to: Norwich Computer Services
96a Vauxhall Street
Norwich NR2 2SD

Phone 0603-766592 *Fax 0603-764011*

Means to an end

Teri Paul delves into some of the shareware and PD releases at your disposal

I HAD a long – and somewhat pointless – discussion with someone recently about the merits of using computers at all. Personally I see them as tools, like a slide ruler or paintbrush, basically a means to an end.

Just because you have the ability to program doesn't mean you have to. In 8-bit days people programmed for academic enjoyment or because they wanted to do something which commercial software didn't do.

It is a short step to releasing your useful bits and pieces for others to enjoy and use, and so PD was born. Unlike the PC and Amiga markets people haven't been making a living from their PD software, but more and more Acorn programs are being designated shareware/licenceware.

You may bemoan the fact that capitalism is supplanting altruism, but some of the best PD writers have, eventually, found themselves fully involved with commercial houses.

As a result they have no time for PD. At least shareware improves the quality of the software and keeps some of the most talented programmers in this area.

TimeZone 2: Share and share alike

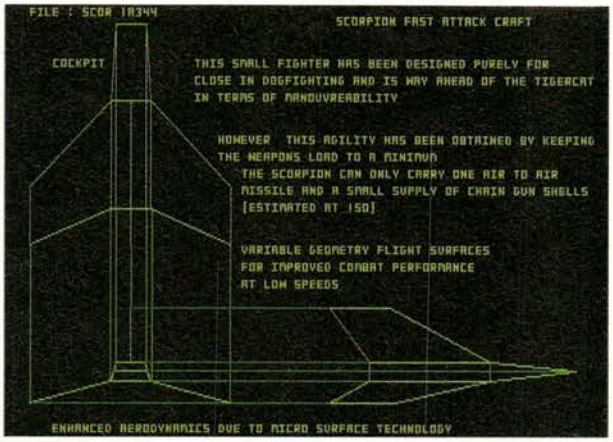
PD group Quantum – despite dabbling in the commercial world with Cycloids being released by Software 42 – are quite diverse in their PD achievements with demos, games and PD disk magazine New Dawn to their credit.

The latest shareware release is **TimeZone 2** and following the original it again uses the Simis Flight Simulator Toolkit. Datafile are distributing this mix of flight simulator and alien disaster movie as shareware. The differences between shareware and PD is a little blurred at times, so Datafile have coined the phrase Licenceware and TimeZone 2: The Return, costs £7.50 but you pay after you've received it, if you like it.

For a quick resumé of the plot: You are the pilot of a Mark 5 Tigercat and as the enemy has been playing around with the fabric of time, black warp holes have appeared within enemy territory. They could have been designed for covert raids from our side so we'd be silly not to take advantage wouldn't we?

So with a ring of enemy installations programmed into your navigation system plus full information in the databanks on Scorpion and Leopard craft you're ready. However, further delving into the information files will reveal that the sneaky adversary has a new weapon, unmanned drones packed with explosives activated by a proximity alarm.

The good news is that the tech boys have come up with a pod to slow these drones down. The bad news is that they haven't had time to test them.


FILE : SCOR 18344
SCORPION FAST ATTACK CRAFT
COCKPIT
THIS SMALL FIGHTER HAS BEEN DESIGNED PURELY FOR CLOSE IN DOGFIGHTING AND IS WAY AHEAD OF THE TIGERCAT IN TERMS OF MANOUVREABILITY
HOWEVER THIS AGILITY HAS BEEN OBTAINED BY KEEPING THE WEAPONS LOAD TO A MINIMUM
THE SCORPION CAN ONLY CARRY ONE AIR TO AIR MISSILE AND A SMALL SUPPLY OF CHAIN GUN SHELLS [ESTIMATED AT 150]
VARIABLE GEOMETRY FLIGHT SURFACES FOR IMPROVED COMBAT PERFORMANCE AT LOW SPEEDS
ENHANCED AERODYNAMICS DUE TO MICRO SURFACE TECHNOLOGY

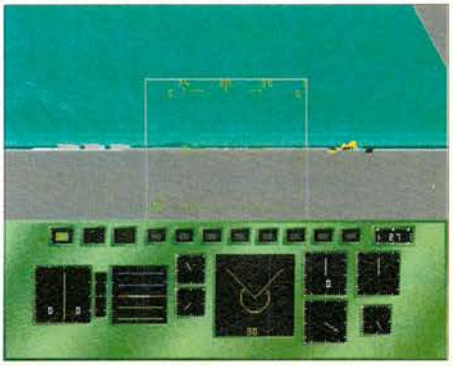
● *Knowing your opposition is a good idea, but don't forget the small print*

All-in-all a well produced simulator with good use of graphics and sound with more polish that its predecessor. A must for anyone who has used the Simis system before – such as Interdictor or Mig29. If not, the controls are many but logical. Enjoy.

The space to watch

APDL are offering cash prizes in a competition for the best PD and shareware programs to come their way. First prize is £100 with five runners-up winning £20 each. If you want to know more, contact APDL directly.

There is a plea from a couple of ➤



● *TimeZone: Engines on – all you need to do is build up speed and take off*

● *Use one of the alternative views from your Tigercat Mk 5 to take stock of the situation*

● *Bandits at three o'clock – in this TimeZone anyway*

➤

PD libraries this month, if you send £1 coins through the post, please secure them with sticky tape to your order as they have a nasty habit of working their way out of the envelope. This is the end of the public service announcement.

Games to make you think

Everyone knows what doesn't make a good game but the secret behind creating a classic remains as elusive. The perennial success of Tetris proves this and the blatant obsession with Colour Tetris around the *Acorn Computing* offices proves that bigger and faster shoot-'em-ups are not having everything their own way.

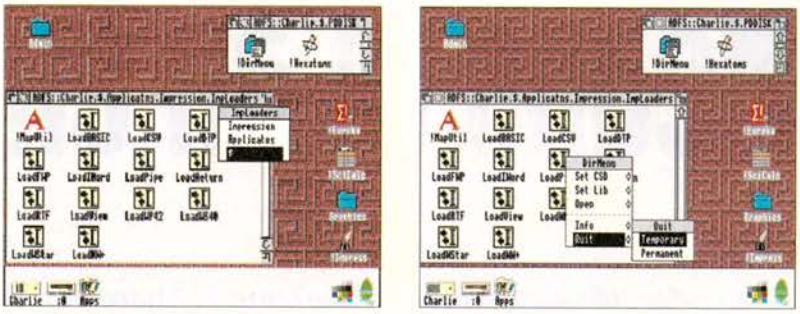
However, **Hexatoms** is running Tetris a close second at the moment. Written by Icelander – and secret Hitchhikers and D&D fan – Orion of Bitbox, it is based on the same principles as Bang which we featured a few months ago.

Rather than arriving via the PC route, the development of Hexatoms came via the Sinclair. It is played on a hexagonal grid with over 200 blocks and victory is yours when only your colour can be seen on the hex map.

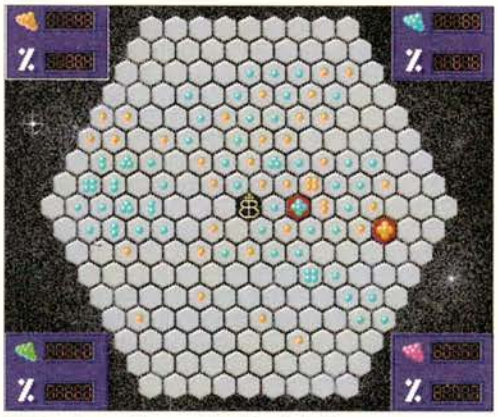
The game starts in two-player mode but you can opt for up to four. Strategy comes into play from quite early on and the art is to place your atom/blob on a hex and so increase your atom count on that hex. However, you can't put atoms on the enemy's hex and when you have enough atoms, the hex to turns red indicating that it is unstable.

If there are three hexes surrounding it you need only two to make it unstable and the third atom makes it explode. Every atom on that hex is spread evenly to the surrounding hexes which can lead to a chain reaction. If your opponent's hexes are also in the surrounding area they become yours.

An added tweak is that judicious use of the Adjust button removes an atom and your next turn.



● *DirMenu lets you access parent files with greater speed and efficiency*



● *Good graphics and tactical challenge are the hallmarks of Hexatoms*

Finding the parents

Acorns co-exist with Apple Macs in our offices – which at times is a good way to count your blessings – but there are advantages to the Apple system. However, it is a lot easier to pick and choose utilities to write for the Acorn from the Apple than vice versa.

System 7 is Apple's latest version of their windows system which is a little cumbersome, but the ability to display a menu of the folder names above the current one is useful so I was pleased to see it implemented on the Acorn machines with **!DirMenu** from Ben Dooks of Doggysoft.

The idea behind a directory menu is to produce a menu showing the directory structure of the parent directories of that window by clicking Menu over the window's title bar. The help file tells us that this idea was suggested to Ben by someone at the BAU Show last August, but they don't know who – well it was our very own editor himself.

However DirMenu does have some other facilities too: If you press Control+Menu anywhere over a Filer window you'll set it as the Currently Selected Directory or CSD – this is where files get saved to if you don't specify a directory. Whereas pressing Shift+Menu in the window will produce a full menu of the utilities available.

PD LIBRARIES

8-BIT HOUSES

8-bit Software, 1 Oakwood Drive, Heaton, Bolton BL1 5EE.
BBC PD,18 Carlton Close, Blackrod, Bolton BL6 5DL.
Elk PD, 5 Edward Street, Clifton, Brighouse, Yorkshire HG6 1QR.
Frisky Clams, 37 Cassiobury Drive, Watford, Herts WD1 3AA.
GLM PD, 2 Pierrefondes Avenue, Farnborough, Hampshire GU14 8NF.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
JJF PD, 49 Hollberry Close, Wingates Green, Redditch, Worcester B98 0QT.
Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
ScreenTeach, 21 Highlands Road, Rochdale, Lancashire.
The Wizard - BBC, Ryburn, Thorpe Lane, Cawood, Selby, North Yorkshire YO8 0SQ.
Welsh Boys PD, 88 Queen Street, Barry, South Glamorgan CF6 8EE.
The Yorkshire Boys, 40 Spotswood Place, Gleadless, Sheffield S14 1LE.

32-BIT HOUSES

3PD, 66E Picardy Road, Belvedere, Kent DA17 5QN.
Abyss Software, 35 Grantley Crescent, Kingswinford, Valley Fields, West Mids DY6 9EH.
Alpine PD, PO Box 25, Craigavon, BT63 5UT.
APDL, 39 Knighton Park Road, Sydenham, London SE26 5RN.
Arcaynia, PO BOX 1927, Sutton Coldfield B74 3YZ.
ArchAngel, 9 Chancel Court, Chancel Lane, Pinhoe, Exeter EX4 8QE.
ARMistic, 136 Wellesley Road, Ilford, Essex IG1 4LJ.
Busy Bee Computers, PO Box 25, Ormskirk, Lancashire L39 3QR.
Craig Beech, 52 Margeholes, Carpendars Park, Watford, Herts WD1 5AR.
Datafile PD, 71 Anson Road, Locking, Weston-super-Mare, Avon BS24 7DQ.
DataStream, 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.
Diamond PD, 86 Meadowbank, Moor Lane, Holway, Holywell, Clwyd CH8 7EF.
Different Ideas Music, 48 Merthyr Road, Dallington, Northants NN5 7BS.
Digital Illusions, 20 College Road, Wembley, Middlesex HA9 8RL.
Digital Phenomena, 104 Manners Road, Southsea, Hants PO4 0BG.
DigiTech PD, 20 Downing Crescent, Bottesford, Scunthorpe, South Humberside DN16 3LS.
DoggySoft, 7 Blackhorse Crescent, Amersham, Bucks HP6 6HP.
Equinox PD, 27 Station Road, Earls Barton, Northampton NN6 0NT.
Five Star Marketing, 18 Woburn Close, Bushey, Herts WD2 3XA.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
I-APL, 11 Auburn Road, Redland, Bristol BS6 6LS.
Kinsway Computer Services, 72 Glencoe Road, Sheffield S2 2SR.
Low Cost PD, 6 Furzeland House, Sheephouse Way, New Malden, Surrey KT3 5PH.
Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
Matt Browne PD, 5 Inglefield, Pottres Bar, Herts EN6 1HD.
Moonlight Graphics – Shareware, PO Box 3569, Cape Town 8000, South Africa.
Naked PD, Fayence, Fulford Road, Fulford, Stoke-on-Trent ST11 9QT.
Ozone-Friendly PD, 180 Cumnor Hill, Oxford OX2 9PJ.
Power to the Programmers, 1st Floor, 23 Cooper Street, Nelson, Lancashire BB9 7XW.
RML PD, 24 Penryn Close, Norwich NR4 7LY.
Skyfall, PO Box 2220, Birmingham B43 5R2.
Spidersoft PD, 218 Saville Park Road, Halifax, West Yorkshire HX1 2XS.
The Demon DPD, 3 Marshall Close, Fishtoft, Boston, Lincs PE21 0RX
Westbourn Services, Westbourne House, 34 Bradley Street, Wooton-under-Edge GL12 6AR.

Software Bargains for ARCHIMEDES SERIES!

Product Checklist

	Our Price
Arcade Games	
2067BC	16.95
Aldebaran	31.95
Black Angel	32.50
Break 147 & Superpool	32.50
Cyborg	21.95
Chuck Rock	25.99
Dungeon	32.50
Elite	39.95
Fervour	21.95
Galactic Dan	24.50
GODS	25.99
Gribbly's Day Out	21.95
Grievous Bodily ARM	24.50
Guile	18.95
Hero Quest	29.99
Ixion	21.95
James Pond	25.99
Karma - The Flight Trainer	15.95
Lemmings	25.99
Loopz	9.95
Oh No! More Lemmings	19.95
Pesky Muskrats	21.95
Populous	29.99
Raw Power	21.95
Ego: Repton 4	21.95
Spheres of Chaos	21.95
S.W.I.V.	25.95
TECHNODREAM!	21.95
The Last Ninja	21.95
WolfPack	17.95
"Mind" Games	
Battle Chess	29.99
Chess 3D	15.95
Cyber Chess	47.95
Omar Sharif's Bridge	29.99
Simulation Games	
Air Supremacy	21.95
Chocks Away Compendium	37.50
Chopper Force	26.95
Dreadnoughts	29.95
Flight Simulator Toolkit	29.95
Mig 29 Fulcrum	21.95
Populous	29.99
Saloon Cars Deluxe	31.95
Saloon Cars Extra Crses	17.95
Lotus Turbo Challenge 2	25.99
Sim City (Due April)	34.95
Waterloo	21.95
Adventure Games	
Enter the Realm	24.50
Heimdall (Due May/June)	29.99
Pandora's Box	24.50
Sport Games	
Champions	29.99
MicroDrive 2	29.95
MicroDrive Designer	29.95
Quest for Gold	25.99
Compendiums	
Champions	29.99
Krisalis Collection	29.99
Play It Again Sam	21.95
Real McCoy 2 or 3 (each)	26.95
Leisure/Various	
Desktop Tracker	69.95

Many special offers on games new and old! Details in our FREE catalogue!

	Our Price
Digital Symphony	46.95
Rhapsody 2	51.95
Rhythm Bed	44.95
Score Draw	51.95
Touch Type (Typing Tutor)	44.95
Utilities	
Illusionist	89.95
PC Emulator V1.8	116.33
Pipedream 4	149.95
Render Bender 2	89.95
Shape FX	11.75
Word Processors	
Desktop Thesaurus	18.95
Easiwriter	159.95
Pendown Plus	83.50
Start-Write	71.95
Techwriter	214.95
Wordz	103.95
Spreadsheet	
Eureka	119.95
Schema	114.95
Databases	
Datapower	149.95
Desktop Database	52.95
Multistore II	199.95
Pinpoint	103.95
S-Base Developer	209.95
S-Base Developer +	315.95
S-Base Personal	103.95
Languages	
C Development system	81.95
Desktop C	234.95
Educational	
10 out of 10 Maths	23.50
10 out of 10 English	23.50
10 out of 10 Early Essentials	23.50
An Eye for Spelling	36.95
Ancient Greece	25.95
Animated Numbers	25.26
Arcventure I – Romans	35.19
Arcventure 2 – Egyptians	35.19
Badger Trails	41.13
Balloons/Zoo	35.25
Best Four Adventure Programs	39.95
Best Four Maths Programs	44.95
Best Four Language Programs	44.95
Billy – Bothersome Bully	11.69
Castle of Dreams	23.50
Connections	32.31
Doris the Dotty Dog	11.69
Edwina's Energetic Elephant	11.69
First Words & Pictures	22.95
Food for Thought	19.92
Freddy Teddy's Adventure	18.95
Fun School 2 0-6/6-8/8+ yrs- each	15.95
Fun School 3 0-5/5-7/7-11yrs- each	21.95
Fun School 4 0-5/5-7/7-11yrs- each	21.95

Fun School 3 & 4 offer!
Buy any two £37.95
Buy any three £56.95

House of Numbers (6-13yrs)	22.95
Glimpse	9.99
Graph-It	23.44
Let's Spell Special Bundle Pack	24.95
Linkword French	39.95
Linkword German	39.95
Linkword Spanish	39.95
Little Red Riding Hood	14.95
Letters & Pictures (6-8 yrs)	19.95
Mega Maths (A Level)	21.50
Micro English (8yrs - GCSE)	21.95
Micro French (8yrs - GCSE)	21.95
Micro German (8yrs - GCSE)	21.95
Micro Maths (11yrs - GCSE)	21.95
Number Zoo	14.85
Primary Maths (3-12yrs)	21.95
Reading Writing Course	21.95
Round World Yacht Race	29.95
Selladore Tales	28.20
Sherston Naughty Stories Pk	58.46
Shylock Gnomes	16.95
Smudge the Spaniel	21.95
Spelling Week by Wk (6-14)	22.95
Stig of the Dump	25.85
Terry's Tricky Trainers	11.69
The Puddle & the Wardrobe	29.95
The Worst Witch	29.38
Theresa's Terrible Trumpet	11.69
TinyLogo/Tiny Draw (4-9yrs)	29.95
Toby Troublesome Tractor	11.69
TV Fun & Games	18.95

Full range of Educational software available! Please ask for our FREE catalogue

Communications	
ArcComm V2	61.95
Arcterm 7	67.95
Hearsay 2	74.95
Desktop Publishing	
Good Impression (Tutorial)	28.95
First Impression (Tutorial)	31.95
Impression 2	145.95
Impression Junior	81.95
Ovation	98.95
Artworks	169.95
Peripherals & Hardware	
Joystick Intfce V2.4 (Leading Edge)	39.95
Joystick Intfce Extension Cable	9.95
JoyMaster (For A3010)	29.99
Clares Micro Mouse	27.50
Sound Samp. & Midi Card	93.99
Dust Covers	
300/400 K'bd & Monitor	12.25
A3000 K'bd only	5.55
A3000 K'bd & Monitor	12.25
A3010/20 K'bd & Monitor	12.25
A3010/20 K'bd only	5.55
A5000 K'bd & Monitor	12.50
Books	
!Help 3	9.95
D/Hand Guide – Impression	12.95
D/Hand Guide – Graphics ARM	12.95
First Impression	31.95
Good Impression	28.95

All prices include VAT

Remember this when comparing prices

** Free carriage on a total order when you buy a Krisalis product! **

£3.00 Off

Buy any of these

* Champions
* Chuck Rock
* GODS
* Hero Quest
* James Pond
* Lemmings
* Lotus Turbo 2
* Man Utd Europe
* Nebulus
* Omar Sharif's Bridge
* Populous
* Quest for Gold
* Sim City
* S.W.I.V.
* The Krisalis Collection

And take £3.00 off anything else!

£3.00 off anything else at the time of ordering (excluding other Krisalis titles) or take a £3.00 voucher to spend at a later date – the choice is yours!

PLUS FREE Carriage too!

The Sherston Naughty Stories!

* Billy the Bothersome Bully
* Edwina's Energetic Elephant
* Terry's Tricky Trainers
* Theresa's Terrible Trumpet
* Doris the Dotty Dog
* Toby the Troublesome Tractor

6 beautifully illustrated and animated stories that young children will love to read and listen to over and over again

Only £11.69 each Age Range 5 - 7 yrs

Or Buy all Six for £58.46!

Spend Over £35.00

and you can have a stylish lockable disc storage box for only **£5.00!**

BBC, Master 128, Electron and Master Compact software!

All the Play It Again Sam compilations from £6.95 each; many other games, and educational software!

Send for our catalogue!

Parents! Teachers! and Pupils!

BBC B Computers

Only £176.25 Inc

Or £229.95 with 40/80t drive

Also includes View & Speech ROMs!

FREE Quarterly news magazine with product descriptions, review comments and Special Offers! Get yourself on the mailing list today!

Seikosha SL 95 Colour Printer
24 Pin Dot Matrix only £249.95

Price includes VAT, Carriage & cable
UK Mainland only, excluding Scottish Highlands

Special Joystick Packs!

(Quickshot 3 Turbo/Python I)

Pack One Joystick Interface V2.4 and 1 x Quickshot 3 Turbo **£49.95**
Pack Two Joystick Interface V2.4 and 2 x Quickshot 3 Turbo **£59.95**
Pack Three Joystick Interface V2.4 & 1 x Superpro Auto Joystick **£51.95**
Pack Four Joystick Interface V2.4 and 2 x Superpro Auto **£61.95**

(Superpro Auto)

RISC OS 2 and 3 compatible!

Software Bargains & Mercury Games
Dept AC53, C/O Northwood House, North Street, LEEDS LS7 2AA
Tel: 0532 436300 Fax: 0532 423289

(AC53)

Please send me your FREE CATALOGUE!

Name _____

Address _____

_____

_____

_____

Post Code _____

Archimedes Series ☐ BBC B/B+/ Master 128/ Master Cpct ☐ Electron ☐

* Access/Visa Welcome
* Please add 95p P&P (Europe £2.50, Outside Europe £4.50)
* All prices include VAT @ 17.5%
* Goods despatched within 48 hrs (subject to availability)

* Educational discount of up to 30% off SRP (not Sale prices as shown in this advertisement) available on most Archimedes software; Official Order No. or school headed notepaper required - minimum order value £30.00 for invoicing, otherwise cheque with order. Please call to confirm your order

(Prices are correct at the time of going to press. E&OE)

Watford Electronics Ltd

Established 1972

Mail Order & Showroom: Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England
Tel: 0582 48 77 77 Tlx: 8956095 WATFRD Fax: 0582 488 588

Showroom Only: Jessa House, 250 Lower High Street, Watford WD1 2AN, England
Tel: 0923 237774 Fax: 0923 233642

The sign of Quality

Shop Hours: 9am to 6pm (Mon.-Sat.) Thursday 9am to 8pm. FREE customer car park.

All prices exclusive of VAT; subject to change without notice & available on request.

Acorn

The choice of Experience

Archimedes micro

System	Basic	Colour	Multiscan
A3010-1Mb Family	£424	£625	£769
A3010-2Mb L/C	–	£680	–
A3020-2Mb FD	–	£749	£799
A3020-2Mb HD60	–	£899	£949
A4000-2Mb HD80	–	£949	£999
A4000-Home Office	–	£999	£1049
A5000 No HD	£689	–	–
A5000-2Mb HD80	–	£–	£1399
A5000-L/C 2Mb HD80	–	–	£1445
A5000-4Mb HD120	–	–	£1599
A5000-2Mb ES	–	–	£1299
A5000-2Mb NS	–	–	£1399
Pocket Book	£212	–	–
Pocket Book Class	£2127	–	–

On-Site Maintenance now available on all Archimedes Micros. Please telephone for details.

Archi A4 Notebooks

A4 Notebook with 2Mb RAM	**£1399**
A4 Notebook 4M RAM/60M HD	**£1699**

FREE OFFER

When you purchase any of the above Archimedes Micros, we will give 10% of the value of the machine in Hardware or Software of your choice

Archi Accessories

- 3.5" 800K 2nd Floppy Drive (305/310) **£118**
- 5.25" 800K external Floppy Drive **£80**
- Acorn I/O Podule (Analogue/User/1MHz bus) **£79**
- I/O Podule (Analogue/User) **£59**
- MEMC 1A Upgrade **£29**
- MIDI add-on to Acorn I/O Podule **£27**
- MIDI Expansion Card **£65**
- Econet Network Board **£38**
- Archi replacement mouse – New design **£29**
- PC Emulator v1.9 **£95**
- Floating Point Unit **£455**
- Keyboard Extension Lead **£6**
- 2 Podule Backplane **£20**
- 4 Podule Backplane **£25**
- Fan for above backplanes **£10**
- Risc Os Extras Software Disc **£5**
- Ethernet Card **£149**
- SCSI Card 8 bit **£129**
- SCSI Card 16 bit **£149**
- SID Utilities Discs – Set of 4 **£19**
- ST506 Hard Disc Controller Card **£99**
- A5000 Dust Cover **£9pr**
- A5000 Technical Reference Manual **£65**
- A4 Spare Batteries **£49**

RISC OS 3 Upgrades

- A 5000 Software Upgrade Kit **£16**
- Software Upgrade Kit for the rest **£40**
- Hardware Upgrade Kit 300/440 **£25**

A3000 Accessories

- 3.5" External Drive **£95**
- Monitor Stand **£15**
- Technical Manual **£39**
- Serial Upgrade **£19**
- A3000 Dust Cover **£5**
- Micro+monitor cover **£9**
- Acorn Carrying Case for A3000 **£10**
- A3000 User Port/Midi Upgrade Card **£44**
- A3000 User/Analogue/IIC I/O Card **£38**
- A3000 External Podule Case **£15**

Scan256 Grey Scale Scanning

If you need a 256 grey-scale hand scanner for your Archimedes then look no further.
Scan256 gives you up to 256 levels of grey at a maximum of 400dpi and is supported by state-of-the-art sophisticated software – **for only £185.** This makes it the only sensible scanning and image processing solution for the Acorn 32-bit range. Just compare these features:

- More than one copy of the image held in memory at once.
- Allows multiple consecutive operations without saving the original to disk.
- Highly advanced dithering and image size reduction.
- Convolution digital filtering with over 100 filters gives high quality images from poor quality scans.
- Adjustable scale and size during scan.
- Supports State Machine G8 Graphics Card.
- Includes shearing and rotation.
- Saves images in industry standard formats: TIFF, Sprite and AIM.
- True brightness, contrast and gamma correction.
- Multiple options – scale to page, centre sideways selected area.
- Selectable scanning modes.
- Plus much much more...

Please specify Archimedes type, not compatible with A3010, A3020, A4000.

£185

A3010 DTP Pack

Supplied with 3.5" Floppy Disc Drive and a mouse, Colour Monitor and lead, TV modulator, 20Mb fast IDE Hard Disk Drive, 'Compression' utility to increase the Hard Drive capacity to typically 40Mb, the highly acclaimed Computer Concept's Impression Junior DTP package, EasiWord wordprocessor, Quest for Gold game, applications suite of software packages and comprehensive audio training tape.

RRP: £1095

Sale Offer Price: £739

- A3010 DTP Pack with Learning Curve **£839**
- Additional 1Mb RAM fitted **£39**

Special Education discounts available on micros, RAM upgrades, ARM 3 Turbo Card, etc. Please write in or telephone:

0582 48 77 77

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

- **R300**-4 Layer RAM upgrade board (Bare). **£25**
- **R302**-A3000 – to 2MB RAM Upgrade **£29**
- **R303**-A3000 – to 2MB RAM Upgrade (expandable to 4MB) **£49**
- **R304**-A3000 – to 4MB RAM Upgrade **£99**
- **R305**-A3010 – to 2MB RAM Upgrade **£39**
- **R306**-A3020 – to 4MB RAM Upgrade **£70**
- **R311**-A305 – to 1MB RAM Upgrade **£30**
- **R312**-A305/310 – to 2MB RAM Upgrade **£115**
- **R314**-A305/310 – to 4MB RAM Upgrade **£229**
- **R412**-A410/1 – to 2MB RAM Upgrade **£25**
- **R413**-A420/1 – to 4MB RAM Upgrade **£50**
- **R414**-A410/1 – to 4MB RAM Upgrade **£75**
- **R810**-A410/1 – to 8MB RAM Upgrade **£579**
- **R820**-A420/1 – to 8MB RAM Upgrade **£549**
- **R840**-A440/1 – to 8MB RAM Upgrade **£479**
- **A5000** – to 2MB additional RAM Upgrade **£82**

Desk Top Publishers

Acorn's Archi DTP Package	**£69**
• Equasor £39; • Expression-PS	**£19**
Impression 2 DTP Pack	**£123**
Impression Junior	**£65**
Impression Business Supplement	**£39**
Impression II Borders Disc	**£19**
Ovation DTP	**£85**
Desk Top Thesaurus	**£18**

Archi Wordprocessors

Pendown Archi	**£48**	Graphic Writer	**£20**
Pendown Plus	**£68**	Easiwriter	**£115**
1st Word Plus – 2	**£63**	EasiWord	**£58**
Pipedream Spell Checker	**£40**	Prime Word	**£52**

Databases

Flexifile	**£79**	Multistore v2.01	**£174**
Knowledge Organiser	**£42**	Pinpoint	**£65**
Magpie	**£40**	Pinpoint Junior	**£23**

Spreadsheets

Eureka	**£99**	Schema	**£89**

Business Graphics

GammaPlot	**£39**	Sigmaplot	**£39**

Integrated Packages

- Pipedream 3 **£116** • Pipedream 4 **£146**
- Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications **£98**
- Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school **£75**

VISA AMERICAN EXPRESS

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	**£189**
ADA 0530	100Mb	16mS	**£259**
ADA 0570	200Mb	15mS	**£369**
ADA 0580	330Mb	15mS	**£599**

All above 3.5" Drives are supplied complete with Controller Card & cable for use with A300/A400/A500 series machines.

AAA 0300 External Case & PSU for A3000 **£85**
AEA 1060 Archi IDE Hard Disc Podule only **£89**

A5000 Internal IDE Drive

ADA 0940	100Mb	16mS	**£195**
ADA 0950	200Mb	15mS	**£275**
ADA 0580	330Mb	15mS	**£525**

A5000 2nd Internal IDE Hard Drive

ADA 0960	100Mb	16mS	**£205**
ADA 0970	200Mb	15mS	**£285**
ADA 0990	330Mb	15mS	**£535**

Internal Hard Disc Drives for A3000/A3010

State of the art, 4 layer internal IDE Hard Cards for the A3000. Software supplied in, On-board ROM.

ADA 0150	20Mb	19mS	**£149**
ADA 0770	30Mb	19mS	**£185**
ADA 0750	60MB	18MS	**£259**
ADA 0720	80Mb	18mS	**£299**
ADA 0730	120Mb	16mS	**£395**

Supplied ready assembled. No soldering required. Simply plug into the allotted space.

Archi IDE Hard Cards

"Simply plug and play"

Watford's easy to instal, low cost, high performance, revolutionary IDE Hard Cards for the A300 & A400 series Archimedes.

ADA 0650	20Mb	19mS	**£159**
ADA 0800	30Mb	19mS	**£195**
ADA 0660	40Mb	28mS	**£289**
ADA 0810	60Mb	18mS	**£299**
ADA 0670	80Mb	18mS	**£309**
ADA 0680	120Mb		**£405**

(All above Hard Cards can be used as Removable Hard Drives. Ideal for Military and Education use.)

DON'T FORGET WATFORD'S HANDS-ON OPEN DAY

On Sunday 18th April, 1993 from 10am - 5pm

Come and see the latest Acorn & PC products including the Aries Perfecta and HP Vectra ranges of quality PC's

Some of the guest companies will include: Acorn Computers, Aries Micro's, Canon, Corel, GST Software, Intel, Lotus and Taxan.

Watford's own technical and sales support staff will be able to offer advice and assistance on the full product range. Seminars will be held by the leading manufacturers and suppliers

Free refreshments will be served all day

Jessa House, Finway (Off Dallow Road) Luton. LU1 1TR.
Tel: (0582) 487777 Fax: (0582) 488588

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features

- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices. **£38**

Leasing finance at very attractive rates now available to Businesses (subject to status), Schools, Colleges, Universities, Government Depts. and Local Councils. Minimum order £1,000. Please telephone for details.

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

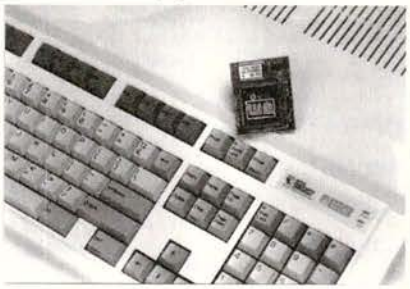
Price £21

Back Plate Extension

- A300/400 **£15;** • A3000 **£14**

ARM 3 Turbo Card MkII

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £169. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £24.

(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Special Offer £145

Acorn have satisfactorily evaluated Watford's ARM 3 upgrade and the A3000 upgrades are fitted by Acorn approved surface mount technology centre, therefore its fitment will not invalidate Acorn's warranty on the micro.

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL **£329**

Add-Ons & Accessories

Econet Module for the Master		**£42**
Twin ROM Cartridge for Master		**£9**
Quad ROM Cartridge for Master		**£14**
Master Reference Manual I	(No VAT)	**£14**
Master Reference Manual II	(No VAT)	**£14**
Master Advance Ref Manual	(No VAT)	**£14**
64K Upgrade Kit for B+		**£32**
ECONET Upgrade Kit for BBC B		**£42**
ALL ECONET UPGRADES Available		
ARIES' IEEE Interface for BBC B & Master		**£238**

Continued→ → → → → → → → →

BBC Education Software

A vous la France	French programs for beginners	£29
Au restaurant/Accident de route	French games for 12 years +	£26
Bolougne and oh les	French program for beginners	£26
Computer control	Program simulating computer control	£26
Computers at work	Primary education program	£17
Espana Viva	Spanish educational programs	£20
Folks Tales	Listening and reading for ages 7+	£22
Geordie Racer	Look and read for ages 7+	£22
Hall of Mirrors	Practice word & number skills	£22
Help your child learn basic mapwork 2		£18
Inside Science	Four common science subjects	£22
Letters and pictures	Educational programs for 6-8 years	£15
Make a wildlife garden	Explore wildlife/weather/garden growth	£22
Maths with a story 1	Primary level maths programs	£20
Maths with a story 2	4 further maths programs	£20
Note invaders	Learn sheet music for 7-Adults	£15
Numbers & Pictures	Early number learning (4-6 years)	£15
Picture craft	Geometrical design & Colouring	£17
Puncman 1 & 2	Learning Punctuation (7-13 years)	£15
Puncman 3 & 4	Learning Punctuation (8-14 years)	£15
Puncman 5, 6 & 7	Learning Punctuation (8-15 years)	£15
Ramayana Tales	Simple Desktop Publisher using pictures & characters from the Ramayana	£22
Skyhunter	Look and read educational adventure	£22
Technology and design	Problem solving programs	£22
Through the dragons eye	Adventure game and Map reading	£22
Fun School 3 (Under 5)	Varied range of Education subjects	£17
Fun School 3 (5-7)	Varied range of Education subjects	£17
Fun School 3 (Over 7)	Varied range of Education subjects	£17

Archi Educational Software

- Animated Alphabet (3-6 yrs) £21
- Arcventure (8-12 yrs) £29
- Bookbinder £43
- Bumper Disc £14
- Bumper Disc 2 £14
- Craftshop 1 £19
- Craftshop 2 £19
- Converta-Key £16
- Data Word £16
- Desktop Stories £35
- DigiSim £35
- Dream Time (5-7 yrs) £23
- Farm (5-7 yrs) £19
- Fleet Street Phantom (9-13 yrs) £25
- Fun School 3 Red (up to 6 years) £17
- Fun School 3 Green (6-8 years) £17
- Fun School 3 Blue (8 years +) £17
- Gate Array Teaching System £68
- Glimpse Clip Art Utility (7-16 yrs) £8
- Highlighter (6-16 yrs) £42
- Jigsaw £19
- Mapventure (9-13 yrs) £24
- Microbugs £24
- Money Matters £16
- Nature Park Adventure (7-9 yrs) £27
- Numerator £60
- Picture Book £16
- Recall (6-13 yrs) £39
- Sellardore Tales £24
- Snippet £37
- Space Mission Mada (9-13 yrs) –
- Sting of the Dump (9-13 yrs) £22
- Viewpoints (9-12 yrs) £33
- Wizard's Revenge (7-10 yrs) £17
- Worst Witch (7-10 yrs) £25

Archimedes Software

GRAPHICS			
3D Construction Kit	£39	Puncman 1 & 2	£16
Arc Light	£46	Puncman 3 & 4	£16
ARCtist	£19	Pysanki	£14
ARCticulate	£19	Quazer	£10
Art Works	£139	Real McCoy 2	£23
Atelier	£60	Real McCoy 3	£22
Artisan II	£45	Redshift	£14
Artisan Gallery	£16	Return to Doom	£16
Autosketch II	£65	Repton 3	£14
CADet (CAD)	£140	Saloon Cars Deluxe	£27
Clip Art Set 1	£28	Sim City	£19
Clip Art Set 2	£28	Spitfire Fury	£22
Concept Designer	£23	Splice	£25
Craftshop 1 & 2	£28	Sporting Triangles	£24
Euclid 2	£50	Superior Golf	£14
Graph Box	£59	Superpool + Break 147	£22
Graphbox Professional	£107	Swiv	£19
HotLink Presenter	£40	Talisman	£12
Illusionist	£69	Timewatch	£24
Kermit	£46	Trivial Pursuit	£22
Mogul	£17	Twin World	£15
PCAD Educ.	£395	U.I.M.	£23
Pro Artisan	£70	White Magic 2	£15
ProCAD	£475	Worldscape	£16
Prime Art	£46	XFire	£19
Render Bender 2	£79	Zelanites	£23
Revelation 2	£80		
Titler	£119	**Miscellaneous**	
Tween	£29	Ancestry	£59
		Arccomm 2	£38
GAMES		Arcterm 7	£64
Air Supremacy	£17	Armadeus Sound	£60
Apocalypse	£14	Avante Garde Fonts	£23
Arcade 3 Compilation	£12	BBC DFS Reader	£6
Battletank	£10	Broadcaster Loader	£65
Black Angel	£27	Chameleon	£34
Boogie Buggy	£14	Chart Well	£25
Break 147 + Supa Pool	£19	Chatter	£34
Bughunter in Space	£12	Compression (CC)	£38
Bughunter/Moondash	£10	Craftshop 1	£27
CADet	£135	Craftshop 2	£27
Casino	£10	Desk Edit 2	£29
Cataclysm	£19	Equasor	£38
Caverns	£10	FlexiFile	£97
Chess 3D	£16	Genesis	£10
Chocks Away	£27	Genesis Plus	£68
Compendium	£32	Genesis 2	£99
Chocks Away Extra	£14	Investigator 2	£22
Chuck Rock	£18	Magpie 2	£42
Conqueror	£15	Notate	£42
Cyber Chess	£38	Numerator	£66
Ego Repton 4	£–	Pin Point	£65
Elite	£33	Polyglot	£16
Enter the Realm	£19	Presenter 2	£29
E-Type Compendium	£20	Presenter Story	£145
E-Type Designer	£13	Prophet Accounts	£132
Family Favourites	£13	Prophet Demo Disc	£10
Galactic Dan	£19	Rainforest	£17
Gods	£24	Revelation 2	£95
Grievous Bodily Arm	£19	Rhapsody in Blue 2	£45
Holed Out Designer	£13	Score Draw	£46
Holed Out Golf Comp	£20	Show Page	£127
Hostages	£14	Speech!	£15
Inter Dictor 2	£26	The Victorian	£17
Iron Lord	£15	Time Tabler	£549
Jahangir Khan Squash	£19	Toolkit (Clares)	£35
Jigsaw	£27	Touchtype	£40
Lemmings	£20	Tracker	£39
Oh no more Lemmings	£15	Turbo Driver BJ10E	£42
Lost Temple	POA	Type Studio	£43
Lotus Turbo Challenge	£19	Vox Box	£46
Mad Prof Mariarti	£17	Wimp Programmer's Toolkit	£16
Masterbreak	£16	WorldScape	£17
Man at Arms	£14		
MahJong Patience	£15	**LANGUAGES**	
Manchester United II	£19	Desktop C	£199
Nebullus	£21	Macro Assembler	£40
Nevryon II	£20	Robo Logo	£69
Omar Sharif's Bridge	£23	BASIC Compiler	£77
Pandoras Box	£18	Logotron Logo	£45
Pipe Mania	£17	Risc BASIC	£120
Play It Again Sam	£–	Risc FORTH	£110
Populous	£23	Cambridge Pascal	£95

Minerva's Archimedes Software

EasyWord	£18	Time Tabler	£549
Home Accounts	£35	System Delta	£59

System Delta Program Reference Manual £29

Stand alone Business Accounts Packages

Sales; Purchase; Order Processing and Invoicing; Nominal Ledger; Stock management

£79 per module

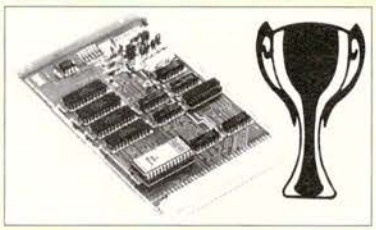
Cortian CKAI Interface

Eliminates the need to have a User port in A3000, A5000 and any other Archimedes without User Port. Fits to the Econet socket. **£29**

Concept Keyboards

- A4 Standard Pack **£95**
- A4 Primary Pack **£100**
- A4 Designer Pack **£110**
- A3 Standard Pack **£99**
- A3 Primary Pack **£105**
- A3 Designer Pack **£110**
- Universal 2010 Keyboard A3 **£115**
- Universal 2010 Keyboard A4 **£110**

Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £75

A Set of Colour Filters for colour image grabbing using a video camera **£16**

Archi Graphic Tablet

Special Price £199

(Price includes Tablet, Leads, Software & Puck)

Stylus Optional Extra **£20**

Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£105**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage transient spikes/surges caused by lightning or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket

4 way top quality mains trailing sockets.
Supplied wired up with mains plug ready for use.
Can be screwed to floor or wall if required.
Very useful for tidying up all the mains leads from your peripherals.

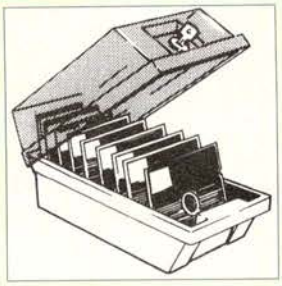
£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

£16

Antistatic Lockable Disc Storage Units



- **M35** – holds up to 50 5.25" discs **£4.95**
- **M85** – holds up to 95 5.25" discs **£6.95**
- **M25*** – holds up to 25 3.5" discs **£4.95**
- **M50** – holds 50 3.5" discs **£6.50**
- **M100** – holds 100 3.5" discs **£6.99**
- **M10** – holds 8 of No. 10 Data Cartridges **£15**

* Not lockable

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

£2

3M – Diskettes

Lifetime warranty on 3M Discs

- *10 x 5.25" S/S D/D 40T (744)* **£5**
- *10 x 5.25" D/S D/D 40T (745)* **£5**
- *10 x 5.25" S/S D/D 80 Track (746)* **£6**
- *10 x 5.25" D/S D/D 80 Track (747)* **£7**
- *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT* **£8**
- *10 x 3.5" S/S D/D 40/80 Track* **£6**
- *10 x 3.5" D/S D/D 40/80 Track* **£6**
- *10 x 3.5" Double Sided High Density* **£10**

Top Quality Diskettes

Watford's life time guaranteed disc are supplied complete with self stick labels & plastic library case.

- *10 x **M3** 3.5" D/S D/D 80 Track* **£6**
- *10 x **M9** 3.5" D/S High Density* **£10**
- *10 x **M4** 5.25" S/S D/D 40 Track* **£5**
- *10 x **M5** 5.25" D/S D/D 40 Track* **£5**
- *10 x **M7** 5.25" D/S D/D 80 Track* **£6**
- *10 x **M8** 5.25" D/S H/D Hi-Density* **£9**

Special Bulk Offer Discs

(Lifetime warranty on Discs)

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	£25	£30	£35
• With Sleeves 5.25"	£28	£33	£38
• 3.5" D/S D/D	£21 for 50	£39 for 100	
• 3.5" D/S H/D	£40 for 50	£75 for 100	

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00**; Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

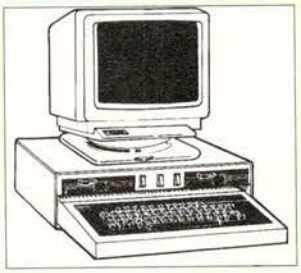
3.5" Disc Drive

These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
• **CLS35:**	Single Disc Drive, 400K	**£59**
• **CLD35:**	Twin Disc Drives, 800K	**£109**
	Disc Drive with PSU	
• **CS35:**	Single Disc Drive, 400K	**£82**
• **CD35:**	Twin Disc Drives, 800K	**£126**

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drives in Monitor Stand



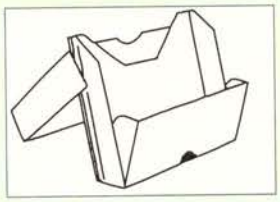
• **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

• **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5".

£154

Plastic Library Cases



DLC1 –	Holds 5 x 3.5" Discs.	£1.50
DLC2 –	Holds 10 x 3.5" Discs.	£1.90
DLC3 –	Holds 5 x 5.25" Discs.	£1.60
DLC4 –	Holds 10 x 5.25" Discs.	£2.00

Disc Albums

Attractively finished in leather-look PVC Vinyl

DW1 –	Holds 6 x 3.5" Discs	£2.50
DW2 –	Holds 6 x 5.25" Discs	£3.00
DW3 –	Holds 20 x 5.25" Discs	£3.50
DW4 –	Holds 40 x 3.5" Discs or 5.25" Discs	£4.50

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Acorn & Watford DFSs

- Watford sophisticated DFS ROM **£16.00**
- Watford DFS Kit complete **£49.00**
- DFS Manual (comprehensive) **£6.95**
- Acorn DNFS ROM **£17.00**
- Acorn ADFS ROM only **£25.00**
- Acorn 1772 DFS ROM Kit **£49.00**
- Acorn DFS Kit complete **£48**

Watford's MkII 1772

Single/Double Density DFS

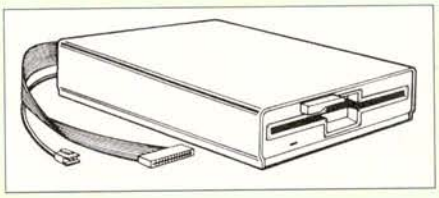
Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

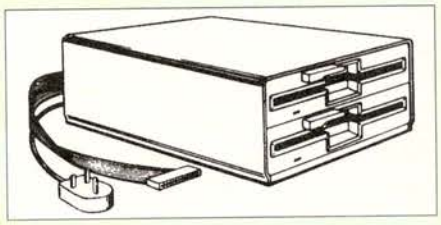
- Complete Kit Special Price **£44**
- DDFS Manual (No VAT) **£6.95**
- We will exchange your existing DFS Kit for our sophisticated DDFS for only **£26**

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).
P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
• **CLS400S:**	Single, 40/80 track 400K Double sided Drive	**£70**
• **CLD800S:**	Twin, 40/80 track, 800K Double sided Drives	**£138**
	Disc Drive with PSU	
• **CS400S:**	Single, 40/80 track, 400K Double sided Drive	**£80**
• **CD800S:**	Twin, 40/80 track, 800K Double sided Drives	**£149**

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Continued→ → → → → → → → →

Microvitec Monitors

- **1431** – Standard Resolution Monitor #£175
- **1451** – Medium Resolution Monitor #£215
- **Cub3000** Medium Res for A3000 #£195
- Dust Cover for Microvitecs £5.50
- **Touchtec 501 Touch Screen** £239
- **Touchtec 3000** £–

Includes 3 years parts & labour warranty

Multiscan Colour

- Eizo F550i £749
- Eizo T560iT £1345
- Eizo T660i-T 20" £1655
- Eizo 9060 £398
- NEC 3FG £359
- NEC 4FG £462
- NEC 5FG £839
- NEC 6FG £1509
- Taxan 787 £238
- Taxan 787LR £262
- Taxan 795PC £445
- Taxan 875+ £729
- Taxan 875+ LR £799
- Taxan 970 £1230
- VIDC Enhancer £25

Aries AlphaScan Monitor

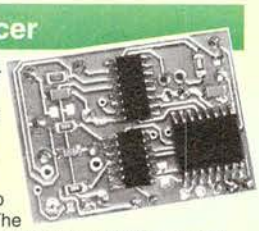
Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The VIDC Adaptor supplied with the monitor allows high resolution operation in all screen modes. **£325**

- Aries Alphascan 17" Plus £585

Philips Monitors

- **BM7502** 12" Hi-res Green Monitor £88
- **CM8833** 14" Med. Res Colour Monitor £195
- Dust Cover for Philips Monitors £6
- Spare Monitor Leads (various) £7

VIDC Enhancer



This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A Desk Top application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: Its unique design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control **£45**

MultiVideo VIDC Card: As above but for MultiScan monitors only. **£25**

Integrex Ink Jet Printers

- Colour Jet 132 Printer £425
- Paper Roll £6.50
- BBC Screen Dump Software £10
- Colour Cartridge £21 • Black Cartridge £12.40
- 100 A4 OHP transparencies £55
- 8K Serial Interface Optional £123
- Colour Jet 2000 £599
- Betajet Ink Jet Printer £185
- Betajet Cut Sheet Feeder £43
- Integrex Colourjet Series 2 £335
- Auto Sheet Feeder for Series 2 £45

Printer Leads

- BBC Centronics 4' £5; 6' £6
- Archi Parallel 2m £5; 5m £9 10m £13
- PC Parallel 2m £5; 5m £9; 10m £13
- 25 pin D Male/Male 2m £5; 5m £10
- Centronics Double Ended 4' £5
- Centronics Double Ended 6' £6
- RS232 Leads Various £POA

Star Printers

	Printer	CSF	Ribbon
LC15	£190	£119	£4
LC20	£104	£69	£4
LC100C	£126	£69	£12
LC24-15	£245	£119	£5
LC24-100	£143	£69	£5
LC24-200	£168	£69	£5
LC24-200C	£214	£69	£12
LC200 C	£151	£69	£12
STAR JET	£169	£43	£16
XB24-200C	#£324	£80	£12
XB24-250C	#£389	£139	£12
ZA-200C	#£260	£–	£12
ZA-250C	#£324	£–	£12

Includes 12 months on-site warranty

- Star/Archimedes Colour Printer Driver £15
- Black Ribbons for Colour Printer £5
- Serial 8K Serial Interface LC10/15/24/200 £52
- 32K Buffer LC/XB24-10; 15; 200 £52

NEC Pinwriter Printers

	Printer	CSF	Ribbon
P220	£189	£59	£6
P30	£235	£59	£6
P62	£342	£89	£8
P72	£406	£115	£8
P90	£579	£115	£8

- Black Ribbons for P20; P30 £6
- Ribbons for P60/70/P90 Black £8; Colour £14
- P60/70 Colour Option Kit £59
- CSF for P20 £59; P60 £89; P70 £89

Panasonic Printers

	Printer	CSF	Ribbon
KX-P1123	£126	£59	£6
KX-P1170	£98	£59	£6
KX-P1624	£264	£126	£8
KX-P1654	£330#	£126	£8
KX-P1695	£267	£126	£8
KX-P2123M	£144	£79	£8
KX-P2123C	£194	£79	£15
KX-P2124	£215	£89	£8
KX-P2180M	£126	£79	£8
KX-P2180C	£143	£79	£15
KX-P2624	£269	£126	£8

Includes 12 months on-site warranty

- Dustcover for 80 column printers £6
- Serial Interface for above Printers £46
- Black Ribbons for P1081, 1180, 1124 £6
- Brown, Blue or Red Ribbons for KX-P1081/1592/1595/1695 £9 each
- 32K Buffer for above Printers £16

P.S. We only sell original Panasonic Ribbons which are guaranteed to last 3 million characters

Citizen Printers

- 120D+ £98
- Swift 9 £145
- Swift 9X £185
- PN-48 £189
- ProJet £299
- Swift 200 £178
- Swift 240 £200
- Swift 240C £212
- Swift 24X £299
- AH29804 Manual Cut Sheet Feeder for Swift 9/24/124. Holds 50 Sheets £29
- Cut Sheet Feeder for 80 col. printers £75

+ FREE 2 years Parts and Labour warranty on all Citizen Printers

- Swift 9 Colour Option £19
- Swift 24 Colour Option £29
- Swift 24 Ribbons Black £4 Colour £13
- Swift 24X Ribbons Black £8 Colour £16
- Citizen/Archimedes Colour Printer Driver £15

VISA Access AMERICAN EXPRESS

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383

Laser Printers

All Laser Printers include 12 months On-site maintenance

Brother HL4-VE	4ppm	£594
Brother HL4-PS Postscript	4ppm	£974
Brother HL8-V	8ppm	£848
Brother HL-10V	10ppm	£1045
Brother HL10PS	10ppm	£1329
Brother HL10DV	10ppm	£1149
Brother HL10DPS	10ppm	£1445
Canon LBP4 LITE	4ppm	£492
Canon LBP4+ 1.5M RAM	4ppm	£644
Canon LBP-8III Plus	8ppm	£945
Canon LBP-8 plus IIIR	8ppm	£1435
Canon LBP-8 IV 600 DPI	8ppm	£993
Epson EPL4000	6ppm	£478
Epson EPL5200 – NEW –	6ppm	£POA
Epson EPL7500	6ppm	£1139
Epson EPL8100	10ppm	£920
Fujitsu VM800 (Best Buy)	8ppm	£549
HP Laserjet IIIP	4ppm	£639
HP Laserjet IIISi PS	16ppm	£2469
HP Laserjet IV (600 dpi)	8ppm	£1035
HP Laserjet 4M PS	8ppm	£1425
NEC Silentwriter S62P P/script	6ppm	£994
NEC Silentwriter 266	8ppm	£669
NEC Silentwriter 290P P/script	8ppm	£1469
NEC Silentwriter S102	8ppm	£995
OKI OL400	4ppm	£440
Panasonic KX-P4410	5ppm*	£462
Panasonic KX-P4430 Satin Print*	5ppm*	£594
Panasonic KX-P4451	11ppm*	£915
Panasonic KX-P4455 Postscript	11ppm*	£1249
Star LP-4 Postscript	–	£774
Star LP-8 III 2	8ppm	£1249
Star LP-8 III	8ppm	£899
Star LP-8 Star(post)script	8ppm	£1130
Star LS-5	5ppm	£489
Star LS-5 EX (RISC Based)	5ppm	£599
Star LS-5 TT True Type + Mac	5ppm	£775

* Now with 2 years On-site warranty

Laser Toners

Canon 2, 3 & 4	£52	Laserjet HP IIP & IIIP	£54
Epson GQ	£13	Laserjet II/D, III/D	£60
EPL4/41/4300	£55	Laserjet 4 & 4M	£75
EPL7100/7500/ 8100	£117	NEC SWriter	£84
		Star LP4	£54
KX-P4420/50/55	£20	Star LP8	£69
Qume Crystal (3)	£75	Star LP8/Canon 8	£59

Laser RAM Upgrades

Type	1M	2M	4M	
IIP; III/P	£49	£80	£132	
II & IID	£60	£96	£142	
LJ4/4M	£–	£75	£175	8M/£279
EPL4100	£–	£120	–	512K/£52
Canon LB8	£139	£275	–	
KX4420/50	£59	£89	£149	
NEC S62/S102	£99	£180	–	
Star LPB	£139	£275	–	

Laser Drum & Developer

- Epson Drum GQ5000 £93 EPL7100 £129
- Panasonic 4420 Drum £60 Developer £80
- Panasonic 4450 Drum £93

Jetpage Postscript Cartridge

- HP IIP/III £225 IID & IIID £227

Various Add-Ons

- HP Adobe costscript + Cartridge £359
- HP Premier Font Collection £28
- Laserjet various Font cartridges from £45
- Canon LBP-4 Lower Cassette Tray £96
- HPIIP/IIIP Lower Cassette Tray £96
- Laserjet 4 Powered envelope feeder £199
- LP4 500 Sheet paper cassette 3rd Bin £205
- Ethernet Card for Laserjet 4 £359

Laser Direct

P.S. We have now discontinued Laser Direct as the Hewlett Packard Laserjet 4 printer offers better facilities at a lower price. See above.

Hewlett-Packard Printers

DeskJet 500	#£272	DJ Portable	£283
DJ550 colour	#£459	DJ500 colour	#£355
Paint Jet XL	+£1199	Paint Jet	+£495
QuietJet plus	£399	PaintJet XL300	+£1779

+ Includes 12 months on-site warranty
# Includes 3 years extended parts & labour warranty
- For additional £49, we will convert above 3 years warranty, to 3 years on-site maintenance warranty
- Paintjet Cartridges Black £15; Colour £23
- DJ Portable CSF £49; Carrying Case £49

Desk Jet 500 Accessories

- 256K RAM Cartridge £69
- HP Epson FX Emulation Cart. (500 mono); £45
- Ink Cartridges Black £14; Colour £23
- High Capacity Black Ink Cartridge £21
- DJ500 Colour Archimedes Printer Driver £15
- Dust Cover £6
- DJ500C Printer Driver for RISC OS 2/3 £15
- DJ550C Printer Driver for RISC OS 2/3 £15
- 636G 50 x Transparencies A4 £32
- 636J 50 x Glossy Paper A4 (also XL) £25
- 630Z 50 x Cut Sheet Paper A4 £12

HP Paintjet/XL Accessories

- **630P** 200 Z-Fold paper 8.5 x 11 £14
- **630Q** 50 Transparencies 8.5 x 11 £39
- **630S** 50 Transparencies A4 £40
- **630Y** 200 Cut Sheets 8.5 x 11 £14
- **631Y** 200 Cut Sheets A4 £18

Plug In Font Cartridges for DJ 500

- 22706B – Prestige, Elite, Line Draw fonts £55
- 22706C Letter Gothic & HP Line Draw fonts £56
- 22707P – Proprint Emulation Cartridge £57
- Desk Jet Unlimited (Book No VAT) £19.75

Canon Bubblejet Printers

	Printer	CSF	2nd Bin	Ink Cart
BJ10EX	£166	£43	–	£16
BJ10SX	£205	£43	–	£16
BJ200	£275	–	–	£16
BJ300*	£335	£88	£65	£12
BJ330*	£369	£110	£79	£12
BJC800C	£1329	–	–	£16

* Includes 12 months On-site warranty

- Spare Battery pack for BJ10E £33
- BJ10EX – Archi Turbo Driver £42

Special Offer:
Canon BJ10EX Printer + CC's Turbo Driver £209

Epson Printers

	Printer	CSF	Ribbon
EX1000C	£428	£–	£6
FX870	£273	£47	£4
FX1170	£339	£69	£6
LQ100	£148	£–	£4
LQ570+	£205	£47	£4
LQ870	£359	£47	£6
LQ1060	£585	£155	£6
LQ1070	£310	£69	£6
LQ1170	£434	£69	£6
LQ2550	£673	£–	£6
LX100	£116	£–	£4
LX400	£94	£69	£4
LX850+	£135	£69	£4
LX1050	£203	£125	£6
PSQ870	£409	£59	£23
SQ1170	£560	£155	£23
SQ2550	£669	£–	£23
Stylus 800	£244	£–	£10

RS232 Interface Standard £28; +8K Buffer £75
Tractor Feed for: LQ100 £29; FX850/LQ800/850 £69; FX/LQ1050 £85; LQ2500/2550 £90

- Dustcovers for Epson 80 col printers £6

Accessories

- EX800/1000 Colour Option £45
- EX800/1000 Colour Ribbon £14
- Multifont Card for LQ550/850/1050 £95

Roland Plotters

- DXY1100 £499
- DXY1200 £649
- DXY1300 £869
- Sketchmate A4 £308
- Sketchmate A3 £475
- HP7440 £670
- HP7570 £2015
- HP7475 £899
- HP7575 £2589
- Roland plotter Pens, Fibre tip £7.50

Fujitsu Printers

- B-100 InkJet – HP Deskjet compatible 300dpi, whisper-quiet & 6 resident fonts #£159
- B-200 InkJet – HP Desk Jet compatible 300dpi. Built in Cut Sheet Feeder. Optional 2nd Bin/Tractor available #£249
- DL-1150 Dot Matrix – 24 pin, 110 column Colour optional £199
- DL-1150colour Dot Matrix – 24 pin, 110 column With colour option £235

- DL1250 £344
- DL3600 £439
- DL4600colour £799
- DL5600colour £1049
- DL5800 £999
- DL1250colour £344

FREE 1 Year On-site maintenance.

- B-100 Cut Sheet Feeder £59
- B-200 2nd Bin Sheet Feeder £89
- B-200 Tractor Unit £59
- B-100/200 Ink Cartridges £14
- DL-1100 Colour Upgrade £39
- DL-1100 Black Ribbon £5
- DL-1100 Colour Ribbon £11
- VM 800 Toner Cartridge (8000 pgs) £99

Full range of Fujitsu Printers available at very competitive prices. Please telephone for details

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold Paper £7
- 2,000 Sheets 9.5" x 11" Fanfold Paper £11
- 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold £21
- 1,000 Sheets 15" x 11" Fanfold Paper £9
- 2,000 Sheets 15" x 11" Fanfold Paper £16
- 1,000 Sheets true A4 Fanfold Paper 70gms £11
- 2,000 Sheets true A4 Fanfold Paper 70gms £21

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 off, 90 x 36mm (Single Row)	£6.00
1,000 off, 90 x 36mm (Twin Row)	£6.25
1,000 off, 90 x 49mm (Twin Row)	£7.50
1,000 off, 102 x 36mm (Twin Row)	£6.75

Laser Printer Labels on A4 Sheets

3750 off, 70 x 29mm (3 Rows x 10)	£15.50
2400 off, 70 x 37mm (3 Rows x 8)	£15.25

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC B/BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£3.25	£5.00
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£5.50	£6.00
LQ1050/LQ2500	£12.00	–
LX400/800/850	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00

Dust covers for most 80 column printers available at £5 each

Professional Printer Stand

The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £19
132 Column version £29

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
• 2 to 1	£10	£10
• 3 to 1	£14	£15
• 4 to 1	£19	£20

Professional Type

Connects	Serial	Parallel
• 2 to 1	£15	£16
• 3 to 1	£20	£23
• 4 to 1	£30	£34

Cables extra at £5 each

Cross Over Manual Switch

2 In/2 Out Parallel	£29
2 In/2 Out Serial	£28
3 In/2 Out Serial	£36

Auto Printer Sharer

Connects	Serial	Parallel
2 to 1	£34	£36
4 to 1	£52	£53
8 to 1	–	£85

256k Multi Spooler

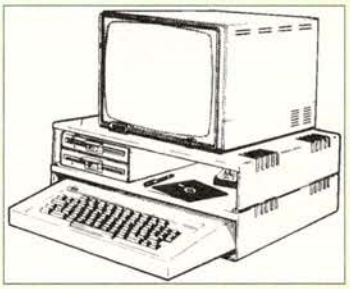
These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

- 2 In/2 out £125
- 4 In/2 out £139
- 8 In/1 out £185

Compact Converter Units

Serial to Parallel £32 Parallel to Serial £32

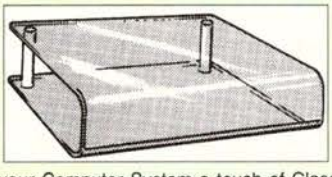
Plinths for the BBC Master and A3000



- Single Master Plinth 490 x 310 x 105mm £14
- Double Master Plinth 490 x 310 x 210mm £26
- A3000 Single Plinth (very sturdy & precision made), has a slot on the left for the switch & cut out on the right for 3.5" Disc Drive £15

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383

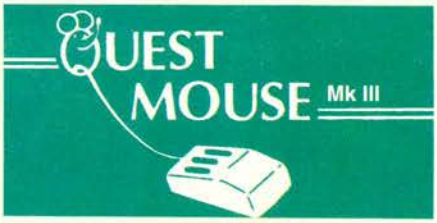
Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version £16 (carr £3)
136 Column version £20 (carr £4)

Continued→ → → → → → → → →



- Quest Mouse III & Quest Paint £49
- Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont £69
- Quest Mouse III only £25
- Quest Paint Software only £28
- Quest Font Disc (22 Text Fonts) £15
- Quest Mouse Mat (Red or Blue or Green please specify) £3
- Conquest (Quest Paint Extension) ROM £24
- Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer £18
  (P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

Mouse Cleaning Kit

To obtain trouble free operation and prolong the life of your mouse, the high tech rodent requires regular cleaning. Our deluxe mouse cleaning kit is ideal for the purpose £3

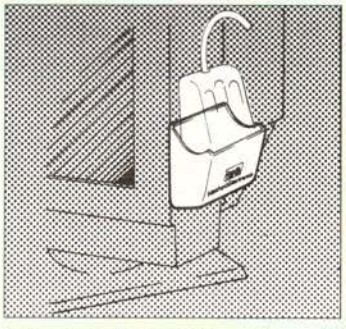
Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

Mk III AMX MOUSE

- **AMX Mouse plus Super Art £49**
  (Please specify for BBC, Master or Compact)
- AMX MOUSE ONLY £25
- AMX SUPERART Package £26
- AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse £25
- PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker £13
- AMX DESIGN (ROM) £29
- AMX EXTRA EXTRA £16
- MOUSE MAT £3

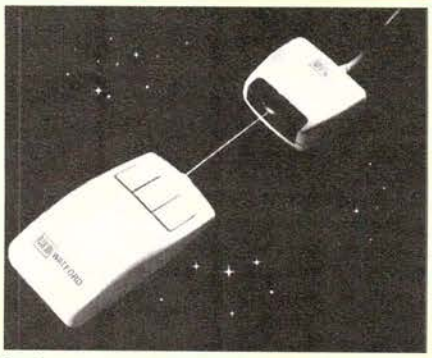
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive etc.

Only £3

Archi Cordless Mouse



Features

- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

Price £32

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.

QT-10 BBC/Master Version £25
QT-20 Archimedes Version £26

Beeb Hand Scanner

Watford Beeb HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs!

Beeb HandScan & Firmware £99

Archi Mk II Hand Scanner

Watford's Mk II hand scanner has a maximum resolution of 400 dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include Cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting. X and Y flip. Edge detection which turns solid objects into outlines.
Images can be printed on any printer supported by RISC OS.
On-screen help is provided via the RiscOS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version £109
AHS-3 Archi A3000 Version £119

Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Wapping Editor Software Pack £49
Wapping Editor plus Mouse £69

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc.
Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out. £15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are two Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions. £12

Wapping Font Disc 2

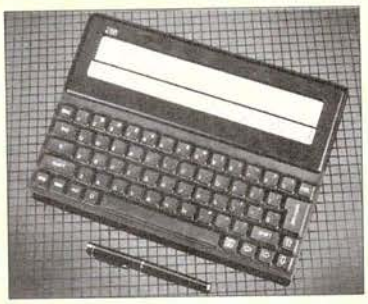
This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only). £13

Archi A4 Scanner

The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.
Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.

Archi A4 Scanner £259
Sheet Feeder for above £75
Scanner + Sheet Feeder £349

Z88 Portable Micro



- Z88 Portable Micro £POA
- 32K RAM Pack or 32K EPROM Pack £16
- 128K RAM Pack or 128K EPROM Pack £32
- 512K RAM Pack **£86** • 256K Eprom Pack £55
- Z88 Eprom Eraser Unit £38
- Z88 Carrying Case £8
- AA Nicad Rechargeable Battery £1.50
- Battery Charger Compact & Fast £6
- Z88 Serial Printer Cable £8
- Z88 Parallel Printer Cable £18
- Z88 to BBC Link £8 • Z BASE £49
- Z88 to PC Link II £27 • Z88 to Macintosh £32
- Z88 Mains Adaptor £9 • Z88 Modem £99

Psion Series III

Psion Series III Computer
- Series 3 128K £155 • Series 3 256K £179

RAM Solid State Discs (SSD)
- 128K £68 • 512K £170 • 1Mb £255

Flash Solid State Disc (SSD)
- 128K £34 • 256K £59 • 512K £102
- 1Mb £170 • 2Mb £255

Communications
- Parallel Interface Link £25
- RS 232 Serial Link for PC £58; Mac £59

Various
- Mains Adaptor 9V AC £12
- Spreadsheet £59
- Professional Finance £42
- Spelling Checker/Thesaurus £42

HP Palmtop PC

- HP95LX 512K Palmtop PC £199

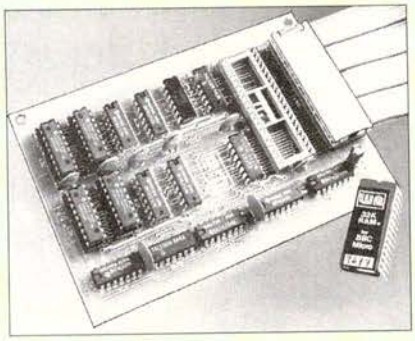
P.S. Above price includes Lotus 123, Desk Diary and Memo softwares in ROM

- HP Connectivity Pack £55
- HP95LX 512K RAM Upgrade £POA

Fax Machines

Brother 305#	£335	Pana UF121	£320
Brother 450#	£375	Pana UF128M	£415
Brother 550M#	£455	KX F2090BE	£488
Canon 170	£520	Tosh TF132	£349

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

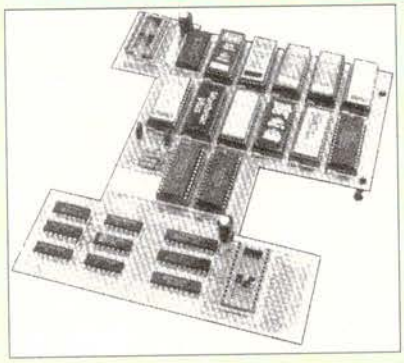
Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.

- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.

Only £49

Solderless Sideways ROM Socket Board



- Increases your BBC Micro's ROM capacity from 4 to 16.
- **No soldering required.**
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish" allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £32

Battery Backup fitted **£35**

Battery Backup only **£3**

16K Sideways RAM **£8**

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

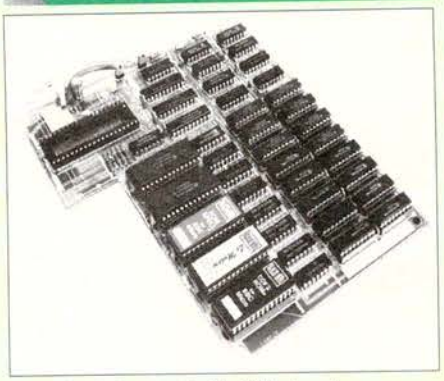
Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

Watford POWER DUCK £8

ROM/RAM Card



- No Soldering required to fit the board.
- Compatible with BBC B
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).

PRICES:
- ROM/RAM card with 32k DRAM £39
- ROM/RAM card with 64k DRAM £52
- ROM/RAM card with 128k DRAM £83

OPTIONAL EXTRAS:
- 16k plug-in Static RAM kit £8
- 16k DRAM for Upgrade £13
- Battery backup £3
- Read and Write protect switches £2 each

Complete ROM-RAM card with all options fitted £99

ROM Cartridges for the BBC Master

Will accept the larger Piggy Back ROMs like Interword, Quest, etc.

• Twin **£9;** • Quad **£14**

24-Hour Credit Card Order Line
(0923) 233383 or 250234

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	50p	75p
RS423 (5 pin Domino)	70p	80p
Cassette (7 pin DIN)	40p	95p
ECONET (5 pin DIN)	35p	50p
Paddles (15 pin 'D')	150p	250p
Disc Drive Plug 4 way	100p	–
6 way Power Connector	120p	150p

Sideways ROM ZIF Socket System

Allows you to change your ROMs quickly and efficiently, without having to open the lid. The ZIF socket is located into the ROM Cartridge's position. It is very simple to install. No soldering required. Also included in the price is a plastic see through storage case with antistatic lining, which allows you to store 12 ROMs.

£18

Leasing finance now available at very attractive rates to Businesses (subject to status), Education establishments, Government Depts. and Local Councils. Min. £1000. Please telephone for details.

Computer Concept's ROMS

Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42

Wordwise plus

£38

FREE, the superb Word-Aid ROM worth £24, with every Wordwise Plus.

Word-Aid

This advance utilities ROM extends the power of your Wordwise plus ROM.

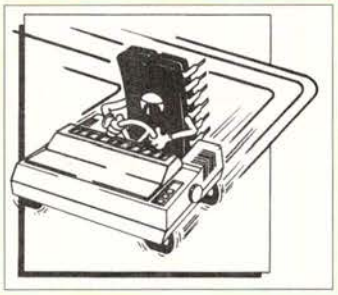
Only **£24**

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheet (Acornsoft)	£36
Viewstore	£36
Viewspell – 80T disc	£25
View-Index	£12

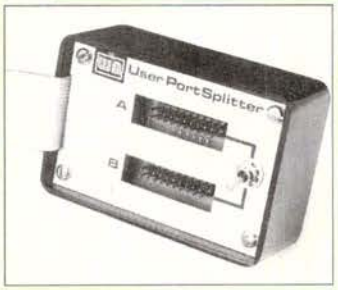
View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

Price: Only £29

User Port Splitter Unit

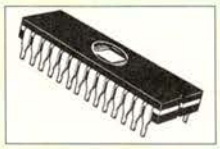


Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows you to connect two devices simultaneously to the BBC's user port.

Excellent Value at **£22**

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Assorted ROMS



ACORN ADFS	£25
ACORN BASIC 2 plus User Guide	£22
ACORN DNFS	£17
Acorn OS B+	£25
Acorn OS 1.2	£14
Beebmon	£22
Dump Out 3	£25
Graphics Extension Rom GXR-B	£21
GXR-B+	£22
Logotron LOGO	£43
MASTER OS ROM	£38
Master ULA (47)	£15
Master ULA (60)	£10
Numerator – Archi	£69
Numerator – BBC	£39
Pendown ROM	£32
Rom Manager	£20
SERIAL ULA	£13
TED	£35
Video ULA	£14
1Mb OS ROM	£39

Watford Electronics' New High Tech Computer Boutique is now open in Luton. Don't miss your chance to visit the Acorn Village.

CHIP SHOP

1 MB-10 DIL D-RAM	£4.50
1 MB ZIF D-RAM	£4.00
256K x 4-8 DIP	£4.75
256K x 4-8 ZIF	£4.00

Memory SIMs

• 256K x 9-7	£9	• 1Mb x 9-7	£29
• 256K x 9-8	£9	• 1Mb x 9-8	£33

Various Chips

DS3691	£4.50		
DS88LS120	£5.25		
LM324	£0.45		
SN76489	£5.50		
SAA5050	£8.75		
UPD7002	£6.00		
2764-250nS	£3.00		
27128A-250n (12V5)	£2.50		
27128-250nS (21V)	£4.00		
27256-2	£3.00		
27512-2	£4.50		
27C101G (1 Meg)	£7.00		
• 4013	75p	• 68B50	£2.95
• 4020	£1.00	• 7438	50p
• 4164-10	£1.55	• 74LS00	50p
• 4464-10	£3.50	• 74LS04	50p
• 4816 RAM	£2.00	• 74LS10	50p
• 41256-8	£2.00	• 74LS123	£1.00
• 41256-10	£1.50	• 74LS163	£1.00
• 6264LP-8K	£4.00	• 74LS244	£1.00
• 6502A	£5.00	• 74LS245	£1.00
• 65C02 3M	£9.75	• 74ALS245	£2.75
• 65C12	£9.00	• 74LS373	£1.00
• 6512A	£10.00	• 74LS393	£1.00
• 6522	£4.00	• 75453	£1.00
• 6522A	£5.00	• 75159	£3.00
• 62256ALS	£10	• 8271	£30
• 62256P-12	£8.50	• 9637	£2.00
• 6818	£4.00	• ICL7673PA	£3.00
• 6845SP	£6.00		

Acorn Speech Synthesizer package complete, for the BBC B Microcomputer

Special Offer £14

Commander Joystick

Features:

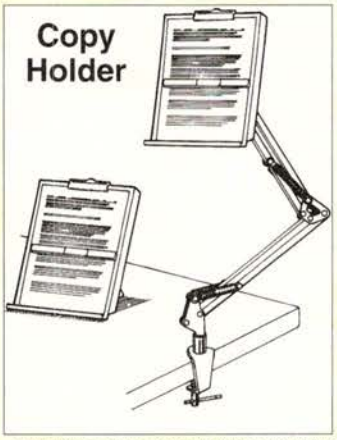
- Direct connection to BBC Analogue input port – interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

Price: £15

Voltmace Joysticks

Delta 3B Single Joystick	£10
Delta 3B Twin Joysticks	£15
Delta 14B Single Joystick	£11
Delta-Cat A mouse eliminator Joystick for the Archimedes	£24
Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128	£25

Copy Holder



Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly be means of a plastic retaining ruler and a clip grip.

Desk Top **£8**
Angle poise **£12**

NEW Copy holders as above but with a battery operated, remote controlled cursor/ruler. (By hand or foot pedal.) (Batteries 2 x AA not included.)

Desk Top **£15**
Angle poise **£20**

Adder EPROM Programmer

Adder EPROM Programs 2764 and 27128 EPROMs for the BBC and BBC Master. Connects to the User port.

Offer Price: **£39**

TEX EPROM ERASERS

Over erasure of EPROMs very rapidly turns them into ROMs!
The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER GT** – Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. **£36**
- Spare UV tubes. **£12**

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip.

- Plastic Chip Extractor **£2**
- Metal Chip Extractor **£3**

Servisol Foam Cleaner

This king size multipurpose foam cleaner spray is ideal for cleaning Keyboard, Monitor, Disc Drive & Computer furniture surfaces.

£2.50

Antistatic Aerosol Spray

Ideal for cleaning and preventing static build-up on TV/Monitor Screens.

£2.50

Aerosol Dust Spray

Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. **£3**

OFFICE MASTER

• CASHBOOK • FINAL ACCOUNTS • MAILIST • EASILEDGER – • INVOICES & STATEMENT

All this for only **£21** (Disc)

OFFICE MATE

• DATABASE • SPREADSHEET • BEEBPLOT

Only £10 (Disc)

Spares for BBC Micro

UHF Modulator	£4
Speaker **£3;** Speaker Grill	£1
Keyswitches	£1
16MHz Crystal	£2
17.734 MHz Crystal	£2
32.768MHz Crystal	£2
Replacement 17 way Flexible Keyboard Connector	£4
BBC Master Power Supply	£59
BBC Master Keyboard	£62
BBC Master Casing	£49
Refurbished BBC B Spares	
BBC B Casing	£19
Clear Perspex Keystrip Holder	£3
BBC B Keyboard	£35
BBC B Power Supply	£42

BOOKS (No VAT on Books)

15 Hr Wordprocessing BBC/View	£6.95
15 Hr Wordprocessing BBC/WW & WW+	£6.95
30 Hour BASIC (BBC Micro)	£12.95
1st Word Plus – Mastering	£13.95
1st Word Plus Rel. 2 Manual	£10.00
A3000 Technical Reference Manual	£29.00
A5000 Technical Reference Manual	£–
Acorn DTP A Guide to	£17.00
Advanced User Guide for BBC	**£10.95**
Archimedes 1st Step – Beginners Guide	£9.95
Archimedes Assembly Language	£14.95
Archimedes Basic V Guide	£9.95
Archimedes BBC Basic Guide	£20
Archimedes DTP Manual	£10.00
Archimedes Game Maker Manual	£14.95
Archimedes Operating System	£14.95
Archimedes Risc-Os Programmers Reference Manual	£79.00
Assembly Language Quick Ref.	£21.95
BASIC 2 – User Guide	£2
BBC B Micro User Guide	£15
Budget DTP on the Archimedes	£12.95
C Big Red Book of	£8.95
C_Dabhand Guide to 3rd Ed	£16.95
C Programming Lang. 2nd Edition	£24.95
DISC FILING SYSTEM (DFS) Operating Manual for BBC	£5.95
DTP on the Archimedes	£12.95
File Handling for All	£9.95
FORTH on the BBC Micro	£9.95
Graphics on the ARM	£14.95
Impression – Dab Hand Guide	£14.95
ISO-PASCAL Reference Manual	£9.95
Master 512 Guide – Dabs Press	£9.95
Master Operating System	£12.95
Master Reference Manual – Advanced	£14
Mouse User Guide to BBC Micro – the Complete	**£5.95**
Example Programs on Disc for above	**£4.95**
Mysteries of Disc Drives & DFS Revealed	£4.95
PASCAL Programming	£10.95
Risc OS Style Guide	£9.95
RISC Technical Manual 260 pg	£14.95
Understanding Interword – A Beginners Guide	£4.95
View 3.0 User Guide	£10
Viewsheet User Guide	£10
Viewstore User Guide	£10
Wimp Programming for All	£12.95
Z88 – A Dabhand Guide	£14.95
Z88 Computing	£9.95
Z88 Magic	£14.95

BOOKS for IBM PC & Compatibles

386/486 PC Power User Guide	£19.95
8086/8088 Ass. Language Quick Ref	£8.45
8086/8088 Programming the	£17.95
Accountancy software in Business – Using	£14.95
Agenda – Using	£21.95
Aldus PageMaker – Using	£21.45
AMI Pro 3 – Using Special Ed	£25.95
Assembly Language 3e – Using	£27.45
Autocad 4th Ed – Mastering	£31.50
AutoCAD – Inside 10 & 11 Spec Ed	£32.45
AutoCAD – Mastering Rel. II 4e	£31.50
Autocad – Mastering Through Rel. 10	£28.95
Build Your own 386/386SX & Save	£15.50
Build Your own 80486 IBM Computer	£12.95
C Programming Language 2nd Ed	£26.95
C – Waite Group Turbo C Bible	£27.95
C++ Borland C++ 3 Handbook 2e	£24.95
Clipper 5.01 3e – Using	£27.45
Computer Users Dictionary	£9.95
Corel Draw Quick Ref Thro V1.2	£7.95
Corel Draw 2.0 Made Easy	£19.95
Corel Draw v2 Quick Ref	£28.90
Corel Draw Quick Ref v1.2	£8.45
dBase 3/4 Complete Ref	£27.45
dBase III Plus – Complete Reference	£19.95
dBase III Plus Handbook 2nd Edition	£22.95
dBase Instant Reference (III & III+)	£10.95
Desk Jet Unlimited	£19.95
DOS Complete Reference 3e	£23.95
DOS for Dummies Through v5.0	£15.45
DOS – Easy (to ver 5)	£18.45
DOS Instant Ref.	£9.75
DR DOS 6 Quick Reference	£8.95
DTP Looking Good in Print 2e	£21.95
EGA & VGA Cards Prog. Guide to	£27.95
Excel 4 Windows – A Quick Course	£11.95
Excel 4 for Windows Quickstart	£20.45
Excel 4.0 Windows Made Easy 3e	£16.50
Excel 4 for Windows 2e – Using	£27.45
Foxpro 2 Made Easy Revised Ed	£20.95
Foxpro 2 – Using	£27.45
Foxpro 2 – Mastering 2ed	£26.95
Framework III – Mastering	£24.50
GW Basic Users Guide & Ref	£17.95
Hard Disc Instant Ref	£10.95
Hard Disc – Using Your	£27.45
IBM PC & PS/2 – Inside the 3rd Ed	£21.70
IBM PCs 386 486 Power User Guide	£17.95
LAN–Understanding Local Area Networks	£23.50
Locoscript PC v1.5 – Using	£14.95
Lotus 1-2-3 for Windows	£27.45
Lotus 1-2-3 Rel. 2.4 Special Ed – Using	£27.45
Microsoft GW BASIC	£17.95
MS-DOS 5 – 10 Minute Guide to	£9.95
MS-DOS Batch Files Quick Ref	£5.95
MS-DOS First Book	£15.50
MS DOS for Beginners	£17.45
MS-DOS Quick Ref Guide 5	£8.95
MS-DOS – Running 4th edition	£19.95
MS-DOS – Supercharging 2nd Edition	£17.95
MS-DOS Users Guide 3rd Edition	£27.95
MS-DOS 5 – Quick Start	£18.45
MS-DOS 5 User Hand Book	£19.95
MS-GW BASIC User Guide & Ref	£17.95
MS Visual BASIC Workshop incl. Disc	£28.30
Netware Understand Local Area	£24.50
Netware Users Guide 2.2 & 3.11	£22.95
Novell Netware 386 Comp Ref	£29.95
Novell Netware 2e – Using	£27.45
Novell Network – Mastering	£27.95
Novell Network – Using	£27.45
Pagemaker 4 IBM – Use incl. Disc	£19.95
Pagemaker 4 for Windows – Using	£27.45
PageMaker on IBM PC – Using	£22.95
Paradox 4 Quick Reference	£8.95
PCs & Compatible Computers for Beginners	£17.95
PC Crash Course 2.0 2nd Edition	£19.95
PC Configuration Handbook 2e	£26.99
PC – Fix your own	£22.50
PC – Upgrade & Maintain – Complete	£25.50
PCs – Upgrading & Repairing 2e	£32.45
Quattro Pro 4.0 Made Easy	£16.50
Quattro Pro 4 Special Ed – Using	£25.95
Smart – Using	£21.45
Smartware II – Mastering	£22.95
Supercalc 5 – Mastering	£24.50
Supercalc 5 2ed – Using	£27.45
Timeworks Publ. 2 – Practical Guide	£16.95
Timeworks Publisher Comp. v2.0	£12.95
Turbo C Bible	£27.95
Turbo C++	£22.95
Turbo Pascal 5 – Using	£22.95
Turbo Pascal Using	£27.45
Unix – Using	£27.45
Upgrading & Repairing PC's	£27.45
Ventura Publisher – Using	£22.95
Ventura Tips & Tricks 3e	£21.95
Ventura – 3rd Edition	£24.95
Windows 3.1 10 Minutes Guide to	£9.95
Windows 3.1 Program Ref Vol 4	£19.95
Windows 3.1 A Quick Course in	£11.95
Windows 3.1 Mastering 2e	£25.50
Windows 3.0 3.1 Using Special Ed	£25.95
Windows 3.1 Complete Ref 2e	£23.95
Windows 3.1 Program Ref Vol 1	£26.95
Windows 3.1 Program Ref Vol 2	£35.95
Windows 3.1 Prog Ref Vol 3	£26.95
Windows 3.1 Quick Reference	£8.95
Windows 3.1 Secrets 2e + Disc	£36.95
Window Programming 2nd Ed	£27.95
Word 2 for Windows Made Easy	£16.95
Word for Windows made easy	£15.95
Wordperfect – Quick Reference V5	£8.95
Wordperfect 5.1 – ABC's of	£18.95
Wordperfect 5.1 – 1st Book of	£15.95
Wordperfect 5.1 – Mastering	£24.95
Wordperfect 5.1 Quick Course	£11.95
Wordperfect 5.1 Quick Start	£20.45
Wordperfect 5.1 – Using Special Ed	£25.95
Wordperfect for Beginners	£17.45
Wordstar & CPM Made Easy	£15.75
Wordstar 6.0 Made Easy	£15.95

WORD FOR WINDOW

10 Minute Guide Word 2 Windows	£9.50
DTP with Word 2 for Window	£20.45
MS WORD 2 Windows Made Easy	£16.95
Master MS WORD 2 for Windows 2e	£24.50
Quick Course Word 2 Windows	£10.95
Running WORD 2 for Windows	£29.95
Using WORD 2 for Windows 2e	£25.95

Carriage on Books vary between £4 to £6.00, depending on their weight

ACORN to PC

Stop the Confusion!

Do you have to use both Acorn computers and PC's? Would you like to use your Archimedes or A3000 in PC-emulation mode but are unsure of the new commands?

Although Acorn machines (such as the BBC B, the Master, the Archimedes) are mainly used in education, most commercial computers use other operating systems, particularly MS-DOS. As a result school computer users are at a disadvantage when moving into 'business' computing. PCs and other commercial computers use MS-DOS as the operating system, so commands for formatting, copying, backing up, printing and the modem are not the same. Even file names are written differently! And did you know that there is one Acorn command which, if used in MS-DOS, wipes everything in the current directory?

'ACORN TO PC' enables you to change over painlessly. It shows clearly and quickly how, why and where the two systems (Acorn and MS-DOS) differ. As with a foreign language dictionary, you can use the book to transfer either way – from Acorn to MS-DOS, or from MS-DOS to Acorn.

Price: £6.95 (No VAT)

The Complete BBC Computer User Handbook

If you own a BBC B, B+, Electron, Master 128 or Master Compact, or Archimedes, then this is the book for you. It shows how to get the best from your machine, and how to make it work for you.

Only: **£9.95** (No VAT)

Beeb PC (BASIC)

Designed for program authors to convert BBC programs to run on IBM PCs.

Price: £38

Beeb DOS 3.0

(Now reads Archimedes Discs)

Beeb DOS is a collection of utilities which run on the PCs and enable it to read and write information on BBC Discs.

Price: £39

The Epson RX/FX Printer Commands Revealed Handbook

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.

However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.

Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out? Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON FX-KAGA PRINTER COMMANDS REVEALED'.

This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from Basic and Wordwise.

£4.95 (No VAT)

- Official orders accepted from government, educational establishments and PLCs.
- Shop Hours: 9am to 6pm, Monday to Saturday. Late night Thursday until 8pm. Free customer car park.
- Mail Order Inquiries: 9am to 6pm. Monday to Friday only
- Technical Inquiries: 9.30am to 5.00pm, Monday to Friday

Carriage (incl. Insurance) Charges		
	1st Item	2nd & Sub-sequent Item
Software	£7.00	£2.00
Hardware	£8.00	£5.00
Lasers	£10.00	£7.00
Accessories	£5.00	£3.00
Small Items	£5.00	£3.00

P.S. Many software packages qualify for the small item tariff

For Next Day Working Day delivery service simply double the cost. All charges subject to VAT

Above carriage charges apply to UK mainland only. On export orders, carriage is charged at cost.

Watford Electronics Ltd

Established 1972

Mail Order & Showroom:

Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England
Tel: 0582 48 77 77 Tlx: 8956095 WATFRD Fax: 0582 488588

Showroom Only:

Jessa House, 250 Lower High Street, Watford, WD1 2AN, England
Tel: 0923 237774 Fax: 0923 233642

Offers and all items are subject to availability. Prices may have to change for reasons beyond our control. Specifications on products are correct at the time of going to press and given in good faith, but may have to change without notice. Please check suitability of peripherals with your system/s, before ordering. All trademarks are acknowledged. Goods are sold subject to our standard terms and conditions of sale and are available on request. GOODS ARE NOT SOLD ON TRIAL BASIS. E&OE.

VAT: UK and EC customers: Please add 17.5% VAT to the total cost, including carriage.

The most popular range of scanners

SCANLIGHT 256

THE CLEAR LEADER IN SCANNING SOFTWARE FOR THE ARCHIMEDES

The ScanLight 256 scanner offers a maximum resolution of 400 dpi true 256 grey-levels at full 105mm width. In addition there is support for monochrome, 16 grey level and 256 grey-level scanning at 100, 200, 300 and 400 dpi. The latest scanner model offers a convenient one-touch scanning button and a unique overscan buzzer which gives an audio warning when you are scanning too fast. A handy ruler is also supplied to ensure perfectly straight scans. The ScanLight software offers several unique facilities that make it the leader in its field - e.g. the ability to provide all picture processing and enhancement functions with only the one original copy of the image in memory - vital since scanned pictures require a great deal of memory.

The ScanLight software offers:

- Instant image rotation by any angle.
- Support for the new RISC OS 3 true 256 grey-level sprite format.
- Only one copy of the image in memory at once.
- On the fly screen dithering for maximum image quality.
- A selection of sampling sizes from 2x2 to 8x8.
- Image enhancement facilities such as sharpening, edge detect etc.
- Simple brightness and contrast controls.
- Spline curve control over grey-map for additional control.

The perfect way to capture high quality pictures for inclusion in DTP or practically any other RISC OS application.

ScanLight 256 scanner, interface board and software £199.00 + VAT (£233.92)

Suitable for all Archimedes models and operating system version.
An internal A3000/10/20 and A4000 version is available for the same price.
Please specify when ordering.

Computer Concepts Ltd

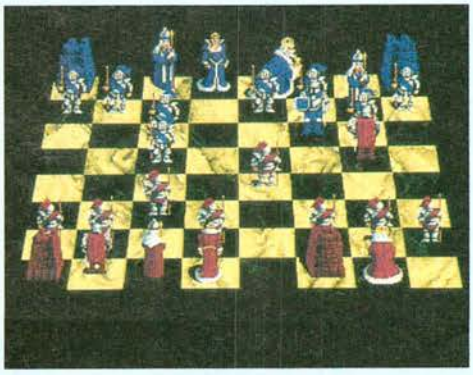
GADDESDEN PLACE HEMEL HEMPSTEAD HERTS HP2 6EX TELEPHONE 0442 63933 FAX 0442 231632

The BBC ACORN USER Spring Show '93

HALL D HARROGATE INTERNATIONAL CENTRE
15TH, 16TH & 17TH APRIL 1993 10 00 A.M. TO 6.00 P.M.

Inspiring new software for students and teachers, covering all areas of education including; Maths, English; foreign languages and talking word processors.

Professionals, will enjoy a superb range of accounting, word processing and graphics software. Look out for scores of bargains and special offers.



Play the day away on a massive range of challenging games for all levels of skill. Try out brand new titles from 4th Dimension, Krisalis and the latest from CIS. Plus surprises from newcomers.

Celebrity visits, Treasure Trail Competition, free show guide, special show offers, low admission rates, free computing advice, school poster competition, surprise attractions.

The Acorn User Spring Show goes to the heart of Britain to bring Acorn expertise to a wider audience. Harrogate, the garden city of the north, is ideally located for easy access by road or rail.

Meet the BBC Acorn User team at our feature stand, for friendly advice, back issues and the perfect opportunity to take out your subscription!

Over 50 exhibitors offer the very latest in educational, professional and leisure technology for the Acorn user. Join the Treasure Trail for your chance to win a bumper pack with prizes from the major exhibitors.

FRIDAY 16TH ONLY

Your chance to challenge TV's Gamesmaster Host

DOMINIK DIAMOND

our special guest who will help with competitions, hand out prizes and, of course, sign autographs for eager fans both young and old.

Low admission prices: Adult £5.00 (£4.00); Under 16 £2.50 (£2.00); Family (2 adults & 2 under 16) £13.00 (£10.00). Under 5's Free admission. The prices in brackets are for advance bookings. Ring 0737 814713 for your advance booking discount.

COMPUTECK Ltd

VISA - MASTER - SWITCH - LOMBARD CARDS

This advert contains just a few of the items we have. Please telephone or send a SAE for our FULL price list.

A3010 Family Solution £395.00
A3010 Learning Curve Colour £632.40
A3010 FD System Colour £632.40
A3020 FD System Colour £696.57
A3020 HD 60 System Colour £836.07
A4000 Home Office System Colour £929.07
A4000 HD 80 System Colour £882.57
A5000 2meg HD 80 System Colour £1301.07
A5000 2meg HD 80 UCurve Colour £1344.74
A5000 4meg HD 120 System Colour £1487.07
A4 Floppy Drive Laptop Computer £1259.10
A4 HD 60 4meg Laptop Computer £1529.10
Master 128 8 bit Basic Computer £359.10
MONITORS, PRINTERS, DISC DRIVES, PLOTTERS – YOU NAME IT WE SELL IT
We operate to ACORN Assist Scheme for Teachers and Students
In fact there's not much we don't do - DTP Service in Full Colour - Colour photo Copying, T Shirt printing - your designs in colour £7.99 inc. T Shirt We even sell Nintendo and Sega Consoles and games!

PRICES DO NOT INCLUDE V.A.T

We specialise in "Trading in" and buying used hardware and software

DELIVERY
£1.00 for small, £2.45 for medium
Expensive products £9.00 for courier

Dinting Lane Industrial Estate, Glossop, Derbyshire, SK13 9NU TEL: 0457 865953 FAX: 0457 869917

USED STOCK SELECTION

COMPUTERS & HARDWARE

BBC B 1770 DFS Series 3	75.00
BBC B 1770 DFS Series 4	75.00
BBC B 8271 DFS Series 3	75.00
Master 512 Board	149.00
Master Compact Entry System	135.00
Z80 Second Processor	90.00
Medium Res Colour Monitor	149.00
Brother HR40 Daisy Wide Carr.	346.96
Mannesman Tally MT85 9 pin	69.00
D/D 5.25 40/80T with PSU	150.00
Dual Drive 80T no PSU	120.87
Plotmate A4 Plotter (B)	198.00
Second Drive A3000 3.5	95.00
128k ROM /RAM Card Bat Back	59.00
5.25 Disc I/Face Archimedes	20.00
8K SRAM Module	12.00
Archi-BBC Serial Link	10.00
Avanced Rom adaptor MK II	8.00
Beeb Video Digitiser	60.00
Care dual 2 x 16K cartridge	8.00
Cartridge System Master 128	10.00
Delta 14B/1 Interface/Voltmace	6.00
Delta 3B Joystick (B)	10.00
GIS Teletext Adaptor	60.00
Grafpad	60.00
I/O Podule Archimedes	49.00
Master ROM Cartridge	8.00
Music 500 Package	40.00
Pace Nightingale Modem	60.00
Prestel Adaptor (BM)	40.00
Printer Sharer 6 Comps to 1 Pr	160.00
Prism Modem 2000 In Software	60.00
Quad Cartridge 4 x 16k	10.00
Quest Mouse	20.00
Replay 1770 BBC B	27.00
Teletext Adapter with ATS	60.00
Touch Pad	15.00
Twin Joysticks	8.00

BOOKS

30 Hour Basic	4.00
60 Progs for the BBC	4.00
Advanced User Guide BBC	10.00
Arc. Operating sys.	13.04
Archi Assem Lang Book & Disc	13.04
Archimedes First Steps	6.00
Beginners Guide to View	3.00
Beyond Basic / R Freeman	4.00
Easy Prog.BBC Micro/E.Deeson	3.00
Forth on the BBC Micro	5.00
Graphics on the BBC	4.00
Graphs & Charts BBC	3.00
Ref Manual Part 1 (M)	10.00
Risc Os prog. Ref Manual	49.00
The Computer Book/BBC Publics	3.00
View Dabhand Guide	8.00
View Ref Manual	6.00
View Store Manual	6.00
Viewsheet/store Dabhand Guide	8.00

SERIOUS SOFTWARE

1st Word Plus Rel 2 (A) Disc	30.00
Adv'd Disc Toolkit (BM) Rom	20.00
Advnd Control Panel (BM) ROM	15.00
AMX Art (BM) ROM & Disc	10.00
AMX Super Art ROM (B)	25.00
ArcComm (A) Disc	20.00
Archway (A) Disc	60.00
Arcscan III (A) Disc	12.00
ARCtlcalate (A) Disc	12.00
Artroom (C) Disc	15.00
Artroom (M) Disc	12.00
Artroom (M) Disc	15.00
Basic Compiler (B) ACK Data	15.00
Basic Editor (BMC) ROM	15.00
BCPL ROM (B)	31.31
Beeb Calc (B) ROM	12.00
BeebDOS (BM) Disc	25.00
Beebman (B) ROM	20.00
Beta Base (B) Disc	14.35
Beta Base (M) Disc ADFS	15.00
Beta Base + Utils (B) Disc	18.00
Beta Base Utils (B) Disc	6.00
CaresDisc Squirrel (BM) Disc	9.00
Chauffeur (B)	8.00
Colour Art (B) Disc	6.00
Complete Cocktail Maker (B) DI	6.00
Computer Awareness Course (B)	10.00
Creation Discs (A) EMR 6xDiscs	26.04
Database (B) Disc	7.00
Desfax Teletext Emul (B) Disc	10.00
Design (B) Disc	10.00
Desktop Office (A) Disc	49.00
Disc Database (B) Disc	10.00
Discmaster (B) Disc	6.00
Dumpout 3	12.00
Easy Type Tutor	12.00
EMR Rhythymbox (A) Disc	23.00
Equasor (A)	25.00
Euclid (A) Disc	34.74
Exmon II (B) ROM	15.00
Farmcash (A) Disc	135.00
Fax File+A4 system (BM) Discs	20.00
Filer (BM) Disc	6.00
Fingerprint (BM) Disc	6.00
Fontaid (B) ROM & Disc CJE	15.00
Fun School 3 Under 5 (A) Disc	12.00
Gemini Combo Pack (B) Disc	12.00
Grafik (BM) Disc	4.00
Graphic Adv Creator (B) Tape	10.00
Graphics (BM) ROM	15.00
Graphics Library (A) Micro Std	12.00
Graphics Pack (B) Tape Salaman	3.00
Gremlin (B) ROM	15.00
GXR Rom (B) ROM/Tape	16.00
Hershey Chars (B) Disc	6.00
HI - View (B) Disc	22.00
Hyperdriver (C) Disc	12.00
Icon Art Master (BM) Disc	12.00
Illustrator Paintbox (C) Disc	10.00
Inter-Sheet (BMC) ROM	30.00
Inter-Word (BMC) ROM	30.00
Inter/View Link (C) Disc	10.00
Invoicing (B) Disc	10.00
Life & Buss Organiser (B) Disc	6.00
Linkword Spanish (BM) Tape	10.00
Machine Code Tutor (BM) Tape	10.00
Mail Shot Application (C) Disc	10.00
Master ROM (M) ROM	20.00
Masterfile II (B) Disc	12.00
Maze (B) Disc	5.00
McVid Graphics (BE) Disc	6.00
Merlin Database/Scribe (B) ROM	17.34
Micro Viewdata Prestel (B)	12.00
Micronet Terminal (B) ROM	8.00
Micros In Business (B) Disc	15.00
Midge Message Compr (B) Disc	6.00
Mint Office II ROM (MC)	30.00
Multistore v2 (A) Disc	95.00
Murom (B) ROM	15.00
Music Collection (B) Disc	8.00
Music System (BM) Discs	19.00
NLQ Designer (BM) ROM	12.00
One Shot (B) Disc	5.00
Ovewrview (B) ROM	50.00
PC Emulator (A) Discs	60.00
Pixel Perfect Maths Pack (B)	10.00
Pixel Perfect Print Pack (BM)	10.00
Presenter II (A) Disc	20.00
Printwise (BM) Disc	15.00
Pro Punter (BM) Discs	30.00
Psychic Powers PSI-Q (B) Disc	6.00
Quest Paint (BM) ROM	20.00
Quickcalc (B) Disc	8.00
Share Anal -Synergy (B) Disc	26.04
Shareware Coll Vol 2 (M) Disc	12.00
Slave + ROM (B)	20.00
Sleuth (B) ROM	18.00
Software Devt Toolbox (A) Disc	45.00
Spanish level B (BM) Disc	10.00
Spell Master (BMC) ROM	30.00
Spellcheck (B) Disc	12.00
Spellcheck II (B) ROM/Disc	15.00
Spy (B) ROM	12.00
STARdataBASE (B) Disc	10.00
Startrader (A) Disc	10.00
Stock Management (C) Disc	26.04
Stop Press Discs (M)	25.00
Teletext (B) Tape	3.50
Teletext Pack (B) Disc	7.00
The Key (B) Disc	5.00
Toolkit (B) ROM	12.00
U Connect (A) Disc	15.00
Ultracalc (B) Disc	15.00
View Index (BM) Disc	6.00
View Spell (BM) ROM & Disc	20.00
View Store (BMC) ROM	30.00
Vistfax-Viewdata (B) ROM	20.00
Vocab Tester (B) Tape	8.00
Vu-Calc (Pslon) (B) Tape	8.00
VU-File (B) Tape	10.00
VU-Type (B) Tape	6.00
Welcome FORTH (B) ROM HCCS	18.00
Wordease (B) ROMs	12.00
Wordwise Plus (BM) ROM	25.00
ZOOM Mach. Code Monitor (B)	10.00
Apocalypse (A) Disc	10.00
Barbarian II (BM) Disc	6.00
Boxing Manager (A) Disc	12.00
Citadel (B) Disc	4.00
Conqueror (A) Disc	14.00
Corruption (A) Disc	15.00
Dominate (A) Disc	10.00
Dronga (B) Disc	5.00
E Type (A) Disc	8.00
Enter the Realm (A) Disc	12.00
Exile (BM) Disc	8.00
Fine Racer (A) Disc	12.00
Firebug (B) Disc	5.00
Fish (A) Disc	15.00
Galaforce (BM) Disc	4.00
Gilder Pilot (B) Disc	6.00
Haverbod (A) Disc	8.00
Indoor Sports (B) Disc	6.00
Interdictor (A) Disc	13.00

GAMES

Interdictor 2 (A) Disc	20.00
Iron Lord (A) Disc	8.00
Karate Combat (B) Disc	6.00
Minotaur (A) Disc	8.00
Palace of Magic (BM) Disc	4.00
Pipeline (BM) Disc	6.00
Planetoid (B) Disc	5.00
Powerband (A) Disc	12.00
Quazar (A) Disc	6.00
Quest (BM) Disc	4.00
Question of Sport (BM) Disc	6.00
Ravenskull (BM) Disc	6.00
Real McCoy (A) Disc	18.00
Real McCoy 2 (A) Disc	15.00
Repton 2 (BM) Disc	4.00
Repton 3 (BM) Disc	6.00
Ricochet (BM) Disc	6.00
Saloon Cars (A) Disc	12.00
Sam 4 (C) Disc	7.00
Spellbinder (BM) Disc	4.00
Spycat (BM) Disc	6.00
Strykers Run (BM) Disc	4.00
Terramex (A) Disc	12.00
Tetris (B) Disc	6.00
The Sentinel (B) Disc	6.00
Thrust (B) Disc	4.00
U.I.M. (A) Disc	13.00
Zenon (BM) Disc	3.00

BBC B & MASTER 128 USERS WE HAVE NOT FORGOTTEN YOU !

PINEAPPLE SOFTWARE

The Pineapple Colour Digitiser

Since we originally introduced the Pineapple Video Digitiser over two years ago we have not needed to modify the design of the hardware in any respects. However, the software has been continually improved to the point where the quality and quantity of software supplied is second to none.

Now, because of the large number of sales, we are able to offer a big price reduction which makes high quality colour digitising available to everybody. Also, because we are so confident that you will find the Pineapple Digitiser superior to anything else available, we offer a full no questions asked money back guarantee.

Some of the features of the Pineapple Digitiser, many of which are still exclusive are as follows:-

* 16 Bit true RGB storage in 256k Ram
* Sequences of frames of a moving picture can be grabbed and stored in memory. Up to 30 frames in a 1Mb computer, 200-300 frames with more memory! A special replay option allows replaying of previously grabbed sequences even while watching a current live input picture.
* Full screen area normally seen on a TV set is grabbed in full
* Images may be processed using our own high speed software routines or by using Acorn's ChangeFSI software
* Quite simply the most powerful and easily used zooming and cropping routines available with any processing package
* Two independent multitasking applications supplied. Non-multitasking software allows digitising without windows for adding still images to videos
* Our hardware does not use interrupts so other applications run at full speed
* Hard locking synchronising circuits for best results from video recorders
* Available in stand alone box for use with A3000. In this mode it can be used with A300/400/500 series computers only occupying one expansion slot
* Full money back guarantee

A300/400/500 £199.00 +vat

A3000/Boxed £235.00 +vat

!!! Coming soon - adapter for A3010, A3020 & A4000 !!!

WARNING!! VIRUS

Your computer could be infected with any of the following viruses. !KILLER will detect and remove them painlessly!

Aprilfool	*Archie*	*Arcuebus*	*BBCEconet*
Bigfoot	*BooHoo*	*Breakfast*	*CeBIT*
Code	*Ex_port*	*Extend*	*ExtendV2*
Funky	*Garfield_1*	*Garfield_W*	*Handler*
Icon	*Image*	*Increment*	*Irqfix*
Link	*Mode87*	*Module*	*MyMod*
NetManager	*NetStatus*	*Parasite*	*Penicillin*
Runopt	*Sprite*	*SpriteUtils*	*Taskmanager*
T2	*Terminator*	*Thanatos*	*Traphandler*
Valid	*Vigay*		

Because we are discovering new viruses all the time we have based the scheme on a yearly subscription which will provide 3-4 updates during a year. An immediate update will be sent out if a particularly nasty virus is discovered.

Don't wait until you discover you have a virus!!

One years subscription costs just £24.00 + vat

Low cost school and county licences available

39, BROWNLEA GARDENS, ILFORD, ESSEX, IG3 9NL

Add 17.5% vat **Tel 081 599 1476 Fax 081 598 2343** *P&P Free*

Access Barclaycard VISA

One-armed wizardry

Mike Goldberg makes a mint and squanders it on a new computer

LIFE just would not be the same without opening a computer magazine every year and finding a listing for a Bandit simulation. And as there has not been the necessary inclusion as yet in *Acorn Computing* let us rectify the matter accordingly.

Despite having the erroneous tag of being an easy program to produce, a Bandit simulation is good grounding for learning how to construct a program that you can build on later, adding refinements wherever you please. Indeed, creating your own version can be a very satisfying day's programming – especially adding your own personal graphics and payouts.

The program here allows for a three-reel bandit with 20 symbols per reel made from eight different fruits or *ikons* as I have called them. Just about everything can be altered to suit your own requirements except for the three reels – any more and the whole thing starts to slow down a bit.

First, the good bit: Load up !Paint and create your own fruit symbols. Call the spritefile *Banditfile*. You want any 256 colour mode for the desktop as the whole thing works in Mode 13 – might as well use all the palette available.

Make the size of each ikon 48 x 48 which works out to be six characters by six in Mode 13 and do not bother having a mask.

Usually bandit reels have a white background on which the fruits are displayed but it's really up to you. Design as many of these fruits as you require (I made eight) and call them *ikonX* where *X* is the number of the symbol from 1 to whatever.

Make sure you save your designs regularly before the file is complete, as early versions of !Paint suffer more fatal internal injuries than a bunch of cliff-happy lemmings.

Next, to represent the ever burgeoning pile of coins you will undoubtedly win, design a 32 wide by 8 high sprite called *stack*. What you are supposed to be drawing is a coin as seen from the side.

Each time a winning selection appears it is nice to witness the flow of coins so draw a coin face on 32 x 32 and *with a mask*.

The mask is necessary as the coin has to be seen flowing from the payout slot.

The slot size is 54 x 48 and called *slot* – no mask required. I have left the designing of the bandit housing itself until last as the positioning of the hold buttons and the reel aperture require a template for you to work from.

At great expense and diligence I have included a procedure in the main program that draws a template displaying the areas where they should be drawn.

The basic areas of the bandit will be drawn to screen and a spritefile called *template* will be saved which you can load into !Paint later and adorn to your heart's content. You must then save it as *background* to the spritefile called *Banditfile* when you are happy with it.

To run the bandit program properly you must first remove line 950 completely:

```
950 PROCtemplate:END
```

Time to customise. So, how many symbols (ikons) did you design? Alter line 1400:

```
1400 DIM I%(8)
```

from the default 8 to however many you created. Then alter the 8 at line 490 to the same figure.

How many symbols per reel? Lines 1380 and 1390 deal with this:

```
1380 amount% = 20
              |
              Number of symbols per reel
1390 amount%-=1 : DIM R%(3, amount%)
                      |   |
                      |   Number of symbols per reel MINUS 1
                  Number of reels (always 3)
```

Alter the value of *amount%* at line 1380. The data for each reel just requires the ikon number of each symbol – lines 850, 870 and 890, reels one, two and three respectively.

Make sure you enter the correct number of data for each reel and notice that you can repeat any of the ikons you have designed. So you could have a reel completely full of ikon1s which could be a whole bunch of cherries.

How many times do the reels go round? Alter lines 1130, 1140 and 1150. For example, line 1130:

```
1130 loops%(1) = RND(10) + 6
```

This guarantees that reel 1 rotates until six symbols have gone past plus another random 1 to 10, that is anywhere between 7 and 16 symbols. Line 1140 makes sure that reel 2 rotates at least as many times as reel 1 before stopping and similarly with reel 3.

How much cash to start with?

➤

➤

You'll find this in line 680:

```
680 totalwin% = 100
```

Well, as it is 10p a go on this bandit that's 100p – 10 goes. Starting with a lower amount of cash is actually more fun than kicking off with a mint. After all, you are trying to WIN money that you do not already have – aren't you? Oh well.

How much can I win? Line 1590 looks to see if the first two reels are matched and awards a paltry 20p pay out at line 1670.

Line 1600 looks for three of a kind and zips off to lines 1740 to 1810 to sort out just how much cash to yield.

The WHEN numbers in the CASE statement refer to the ikon numbers so if you designed cherries for ikon 1 getting three of them would win you a measly 30p whereas three number eight ikons get you the jackpot three quid.

All arbitrary of course – the default payouts here are analogous to real fruit machines circa 1985 which was the last time I was fleeced by one.

How often will I get a hold? Look at line 1170:

```
1170 IF RND(3) = 1 hold% = 1
```

For more holds decrease the random 3 to a 2 – for less holds increase it to whatever you feel is realistic. Actually I reckon real bandits take into account how you are faring when it comes to flashing the hold signs. It can be no mere coincidence that the hold you most desperately want appears the spin *after* the one when you want it!

The keys are simply Spacebar to activate the reels and 1, 2 and 3 for holding the reels when lit. So, have fun and may luck and good fortune be yours. And the program's on the coverdisk.

Line numbers and Risc OS 3

On Risc OS 3 you can load Basic programs into Edit by double-clicking them with Shift held down but there won't be any line numbers. To move to the correct line press F5, enter the line number divided by 10 and click OK or press Return. So to go to line 1170, enter 117 and press Return.

A bandit simulation is good grounding for learning how to construct a program

```
  10 REM > <MAGs$Dir>.BANDIT
  20 REM by Mike Goldberg and Cat
  30 REM (c) Acorn Computing
  40 MODE13
  50 OFF
  60 OS="OS_SpriteOp"
  70 REM Load in the Spritefile
  80 sprites$="<MAGs$Dir>.BANDITfile"
  90 file%=OPENIN(sprites$)
 100 size%=EXT#file%+64
 110 CLOSE#file%
 120
 130 REM Dimension an AREA the SIZE of
the file to store sprites in
 140 DIM area% size%
 150 area%!0=size%
 160
 170 REM Initialise area to load the sp
rite definitions to
 180 SYS OS,256+9,area%
 190
 200 REM Now load the sprite definition
s to this area
 210 SYS OS,256+10,area%,sprites$
 220
 230 REM _____SET UP ONCE ONLY_______
 240 PROCdims
 250 PROCsprites
 260 REM --
 270 PROCinit
 280 PROCscreen
 290
 300 REM -OUTER LOOP
 310 REPEAT
 320 PROCstart
 330
 340 REM --LOOP--
 350 REPEAT
 360 IFS%(1)=1PROCspin(1)
 370 IFTIME>25IFS%(2)=1PROCspin(2)
 380 IFTIME>50IFS%(3)=1PROCspin(3)
 390 UNTILS%(1)=0ANDS%(2)=0ANDS%(3)=0
 400 PRINTTAB(10,23)SPC4TAB(18,23)SPC4T
AB(26,23)SPC4
 410 REM --
 420 PROCresult
 430 UNTILtotalwin%=0
 440 REM --
 450 END
 460
 470 REM SORT SPRITES OUT
 480 DEFPROCsprites
 490 FORI%=1TO8
 500 PROCsetsprite("IKON"+STR$(I%),I%(I
%),h%,w%)
 510 NEXT
 520 PROCsetsprite("BACKGROUND",BG%,h%,
w%)
 530 PROCsetsprite("COIN1",coin1%,h%,w%
)
 540 PROCsetsprite("SLOT",slot%,h%,w%)
 550 PROCsetsprite("STACK",stack%,h%,w%
)
 560
 570 ENDPROC
 580
 590 REM Init sprites
 600 DEFPROCsetsprite(string$,RETURN va
lue%,RETURN width%,RETURN height%)
 610 SYS OS,256+24,area%,string$ TO,,va
lue%
 620 SYS OS,256+40,area%,string$ TO,,,w
idth%,height%
 630 ENDPROC
 640
 650 REM INIT
 660 DEFPROCinit
 670 hold%=0
 680 totalwin%=100
 690 STX%=64
 700 STY%=8
 710 X%(1)=320
 720 X%(2)=X%(1)+224
 730 X%(3)=X%(2)+224
 740 Y%()=512
 750 N%()=1
 760 S%()=1
 770 FORJ%=1TO3
 780 FORI%=0TOamount%
 790 READR%(J%,I%)
 800 NEXT
 810 NEXT
 820 ENDPROC
 830 REM REEL DATA
 840  REM Reel 1
 850 DATA1,2,4,3,1,2,5,1,6,2,3,7,2,8,2,
4,3,2,5,3
 860  REM Reel 2
 870 DATA4,6,7,1,3,8,2,1,5,4,2,1,2,4,6,
2,1,3,2,1
 880  REM Reel 3
 890 DATA1,3,8,2,1,6,2,3,7,2,5,1,6,4,2,
1,2,4,5,2
 900
 910 REM SCREEN
 920 DEFPROCscreen
 930 BX%=200
 940 BY%=0
 950 PROCtemplate:END
 960 SYS OS,512+34,area%,BG%,BX%,BY%,0
 970 VDU26
 980 GCOL0:TINT2,0
 990 RECTANGLEFILL288+32,288+64,700-64,
640-128
1000 PROCstack(totalwin%)
1010 VDU24,288+32;288+64;288+700-32;288
+640-64;
1020 FORI%=1TO3
1030 SYS OS,512+34,area%,I%(R%(I%,2)),X
%(I%),Y%(I%)+192,0
1040 SYS OS,512+34,area%,I%(R%(I%,1)),X
%(I%),Y%(I%),0
1050 SYS OS,512+34,area%,I%(R%(I%,0)),X
%(I%),Y%(I%)-192,0
1060 NEXT
1070 ENDPROC
1080
1090 REM START
1100 DEFPROCstart
1110 hold%=0
1120 S%()=1
1130 loops%(1)=RND(10)+6
1140 loops%(2)=loops%(1)+RND(6)
1150 loops%(3)=loops%(2)+RND(6)
1160 c%()=1
1170 IFRND(3)=1hold%=1
1180 PRINTTAB(10,23)SPC4TAB(18,23)SPC4T
AB(26,23)SPC4
1190 IFhold%=1COLOUR7:PRINTTAB(10,23)"H
OLD"TAB(18,23)"HOLD"TAB(26,23)"HOLD"
1200 REPEAT
1210 SYS6,15
1220 IFhold%=1PROChold
1230 UNTILGET=32
1240 totalwin%-=10
1250 STY%-=32
1260 VDU26
```

GET IT RIGHT

```
  10 =   0 0    240 = DE8E F    470 =   0 0    700 =  DA8 1    930 = 6656 8   1160 = 457A 6   1390 = 48DE E   1620 = D1AD A   1850 = EDOF 9   2080 = CAA6 1   2310 = A29A 1
  20 =   0 0    250 = 9617 9    480 = 7BB1 D    710 = FD8F A    940 = FB0B F   1170 = 16AC C   1400 =  18 5    1630 =   0 A   1860 =   0 9   2090 = 7C82 C   2320 = FCA0 0
  30 =   0 0    260 =   0 9     490 =  E75 F    720 = 62FD 6    950 = 3872 2   1180 = 394F B   1410 = 9E16 A   1640 = 6CD4 D   1870 = 980C 4   2100 = BF72 7   2330 = C585 9
  40 = 6054 4    270 = DEBB 1    500 = 8A21 7    730 = AF68 A    960 = 7A0C 3   1190 = B203 8   1420 = BB36 6   1650 = 4638 F   1880 =  2A9 8   2110 = 4737 9   2340 = 5714 0
  50 = E16F 9    280 = 9538 B    510 = 2C83 3    740 =  631 C    970 = B962 8   1200 = BFBA B   1430 = 9741 7   1660 = 8AD2 7   1890 = C72D A   2120 = 2C83 7   2350 = 9BA9 D
  60 = 5BC4 4    290 = D1AD 9    520 = CE3A 5    750 = 3E31 E    980 = 66D4 A   1210 = 9501 8   1440 = EDOF 9   1670 =  5F0 7   1900 = 558F 9   2130 = B962 4   2360 = 42C3 7
  70 =   0 4     300 =   0 9     530 = F3A5 3    760 = 6AF6 1    990 = 2517 F   1220 = 95E1 E   1450 = D1AD 2   1680 = EA6E D   1910 = 9620 B   2140 = 1356 1   2370 = F5A6 3
  80 = DFE5 4    310 = BFBA B    540 = 9959 A    770 = 71FE 3   1000 = D65B 4   1230 = 893C E   1460 =   0 2    1690 = E351 D   1920 = 5E51 B   2150 = E2E8 9   2380 = 834F A
  90 = AC8D 1    320 = 9D5F 2    550 = 2183 6    780 = 3774 7   1010 = E2E8 1   1240 = D541 3   1470 = 2DA6 6   1700 = EDOF 8   1930 =  1E 0    2160 = EDOF 3   2390 = BF75 9
 100 = 8747 7    330 = D1AD 3    560 = D1AD F    790 = FE5E 7   1020 = BF1E 3   1250 = F43E A   1480 = 8BA8 6   1710 =  8E1 4   1940 = EDOF F   2170 = D1AD D   2400 = 26CA 1
 110 = 81A4 A    340 =   0 3     570 = EDOF D    800 = 2C83 2   1030 = 17B4 8   1260 = B962 E   1490 = 4330 8   1720 = D1AD C   1950 = D1AD 6   2180 =   0 D   2410 = 1545 2
 120 = D1AD 7    350 = BFBA 8    580 = D1AD 0    810 = 2C83 6   1040 = A963 6   1270 = 66D4 F   1500 = 286D C   1730 = D412 8   1960 =   0 6   2190 = 4A7A 1   2420 = 57BD A
 130 =   0 7     360 = 9D00 0    590 =   0 0    820 = EDOF C   1050 = 5043 A   1280 = CF5A A   1510 = 8EC2 F   1740 = 70F5 E   1970 = 5B4D 7   2200 = ACDA 8   2430 = C6EB 8
 140 = 8543 A    370 = 72A5 9    600 = 70E6 4    830 =   0 C    1060 = 2C83 E   1290 = E2E8 0   1520 = 3200 E   1750 = C426 B   1980 = B6F3 6   2210 = E850 7   2440 = EDOF D
 150 = E19B C    380 = E15E A    610 = 3134 A    840 =   0 C    1070 = EDOF F   1300 = 173E C   1530 =  47F 4   1760 = 6A68 A   1990 = 1D2A 4   2220 = 194A 8
 160 = D1AD 3    390 = 4B2E 9    620 = 3966 7    850 = 7BB9 0   1080 = D1AD E   1310 = 26CF 2   1540 = EDOF 9   1770 = 11D4 8   2000 = 19CD 8   2230 = D3A7 D
 170 =   0 3     400 = 394F A    630 = EDOF 6    860 =   0 0    1090 =   0 E   1320 =  7CA C   1550 =   0 9   1780 = 8164 8   2010 = 5500 1   2240 = 2C83 F
 180 = BF36 0    410 =   0 A     640 = D1AD D    870 = 4129 1   1100 = 363B D   1330 = EDOF 7   1560 = 41A8 8   1790 = 46F7 0   2020 = D20E 4   2250 = EDOF 6
 190 = D1AD 5    420 = 2129 3    650 =   0 D    880 =   0 1    1110 = 93D4 F   1340 = D1AD 9   1570 = EF59 C   1800 = F94B F   2030 = D1AD 2   2260 =   0 6
 200 =   0 5     430 = 3F1C 6    660 = 344C 5    890 = F1BA 6   1120 = 6AF6 8   1350 =   0 9   1580 = 57B4 A   1810 = 98CA 4   2040 =  48C 8   2270 = 63A9 2
 210 = 9873 A    440 =   0 6     670 = 93D4 7    900 = D1AD B   1130 = D6DE 9   1360 = 3479 F   1590 = 41A6 5   1820 = 6827 3   2050 = 6861 8   2280 = 3224 A
 220 = D1AD F    450 = FD2E 1    680 = 88B6 6    910 =   0 B    1140 = 7F6A 6   1370 = 9FE8 3   1600 = AEFD C   1830 = E351 4   2060 = BFBA 6   2290 = D160 0
 230 =   0 F     460 = D1AD 0    690 = 8624 0    920 = F5B9 2   1150 = B70A 9   1380 = 3998 3   1610 = EDOF 9   1840 = EA6E 3   2070 = 2EA0 C   2300 = CCC3 1
```

```
 1270 GCOL0:TINT2,0
 1280 RECTANGLEFILLSTX%,STY%,128,32
 1290 VDU24,288+32;288+64;288+700-32;288
+640-64;
 1300 TIME=0
 1310 IFS%(1)=0TIME=26
 1320 IFS%(2)=0TIME=51
 1330 ENDPROC
 1340
 1350 REM DIMS
 1360 DEFPROCdims
 1370 DIMX%(3),Y%(3)
 1380 amount%=20
 1390 amount%-=1:DIMR%(3,amount%)
 1400 DIMI%(8)
 1410 DIMS%(3)
 1420 DIMN%(3)
 1430 DIMloops%(3),c%(3)
 1440 ENDPROC
 1450
 1460 REM SPIN REELS
 1470 DEFPROCspin(r%)
 1480 Y%(r%)-=32
 1490 SYS 0$,512+34,area%,I%(R%(r%,(N%(r
%)+2)MODamount%)),X%(r%),Y%(r%)+384,0
 1500 SYS 0$,512+34,area%,I%(R%(r%,(N%(r
%)+1)MODamount%)),X%(r%),Y%(r%)+192,0
 1510 SYS 0$,512+34,area%,I%(R%(r%,N%(r%
 ))),X%(r%),Y%(r%),0
 1520 SYS 0$,512+34,area%,I%(R%(r%,(N%(r
%)+19)MODamount%)),X%(r%),Y%(r%)-192,0
 1530 IFY%(r%)=320Y%(r%)=512:N%(r%)=(N%(
r%)+1)MODamount%:c%(r%)+=1:IFc%(r%)=loop
s%(r%)S%(r%)=0
 1540 ENDPROC
 1550 REM RESULT
 1560 DEFPROCresult
 1570 win%=0
 1580 fruit%=R%(1,N%(1))
 1590 IFR%(1,N%(1))=R%(2,N%(2)):IFR%(2,N
%(2))=R%(3,N%(3))PROCwin(fruit%,3)
 1600 IFR%(1,N%(1))=R%(2,N%(2))ANDR%(3,N
%(3))<>R%(2,N%(2))PROCwin(fruit%,2)
 1610 ENDPROC
 1620
 1630 REM WIN
 1640 DEFPROCwin(f%,x%)
 1650 VDU7
 1660 IFx%=2 THEN
 1670  win%=20
 1680  totalwin%+=win%
 1690 PROCdropcoins(win%)
 1700  ENDPROC
 1710 ENDIF
 1720
 1730 CASE f% OF
 1740  WHEN 1:win%=30
 1750  WHEN 2:win%=40
 1760  WHEN 3:win%=80
 1770  WHEN 4:win%=100
 1780  WHEN 5:win%=150
 1790  WHEN 6:win%=180
 1800  WHEN 7:win%=200
 1810  WHEN 8:win%=300
 1820 ENDCASE
 1830 PROCdropcoins(win%)
 1840 totalwin%+=win%
 1850 ENDPROC
 1860 REM HOLD
 1870 DEFPROChold
 1880 IFINKEY-49ANDS%(1)=0S%(1)=1:COLOUR
7:PRINTTAB(10,23)"HOLD":ENDPROC
 1890 IFINKEY-49ANDS%(1)=1S%(1)=0:COLOUR
13:PRINTTAB(10,23)"HOLD"
 1900 IFINKEY-50ANDS%(2)=0S%(2)=1:COLOUR
7:PRINTTAB(18,23)"HOLD":ENDPROC
 1910 IFINKEY-50ANDS%(2)=1S%(2)=0:COLOUR
13:PRINTTAB(18,23)"HOLD"
 1920 IFINKEY-18ANDS%(3)=0S%(3)=1:COLOUR
7:PRINTTAB(26,23)"HOLD":ENDPROC
 1930 IFINKEY-18ANDS%(3)=1S%(3)=0:COLOUR
13:PRINTTAB(26,23)"HOLD"
 1940 ENDPROC
 1950
 1960 REM DROP COINS
 1970 DEFPROCdropcoins(wow%)
 1980 wow%=wow%/10
 1990 VDU24,548;0;732;160;
 2000 SX%=532
 2010 SY%=0
 2020 CX%=580
 2030
 2040 FORI%=1TOwow%
 2050 CY%=160
 2060 REPEAT
 2070 SYS 0$,512+34,area%,slot%,SX%,SY%,
0
 2080 SYS 0$,512+34,area%,coin1%,CX%,CY%
,8
 2090 WAIT
 2100 CY%-=12
 2110 UNTILCY%<-140
 2120 NEXT
 2130 VDU26
 2140 PROCstack(win%)
 2150 VDU24,288+32;288+64;288+700-32;288
+640-64;
 2160 ENDPROC
 2170
 2180 REM STACK OF COINS
 2190 DEFPROCstack(H%)
 2200 H%=H%/10
 2210 FORI%=1TOH%
 2220 SYS 0$,512+34,area%,stack%,STX%,ST
Y%,0
 2230 STY%+=32
 2240 NEXT
 2250 ENDPROC
 2260 REM TEMPLATE
 2270 DEFPROCtemplate
 2280 GCOL12
 2290 RECTANGLEFILLBX%,BY%,996,1020
 2300 GCOL4
 2310 RECTANGLEFILLBX%,BY%,872,1020
 2320 GCOL7
 2330 RECTANGLEFILLBX%+120,BY%+352,636,5
12
 2340 GCOL21
 2350 RECTANGLEFILLBX%+332,BY%+48,212,13
6
 2360 GCOL15
 2370 RECTANGLEFILLBX%+332,BY%,212,48
 2380 GCOL19
 2390 RECTANGLEFILLBX%+104,BY%+240,156,6
4
 2400 RECTANGLEFILLBX%+104+256,BY%+240,1
56,64
 2410 RECTANGLEFILLBX%+104+512,BY%+240,1
56,64
 2420 VDU24,BX%;BY%;996+BX%;1020;
 2430 *SCREENSAVE <MAGs$Dir>.TEMPLATE
 2440 ENDPROC
```

SPECIAL OFFERS

Fast Arm 3 Upgrade 35Mhz £219
Fast Arm 3 + Risc OS 3 35Mhz £254
Arm 3 25 Mhz to 35Mhz Upgrade £171

A5000 2Mb Ram upgrade £79

SCSI Systems

Using High-Quality Conner, Quantum or Maxtor drives.
All systems are CDFS ready and are Acorn compatible.

Internal Systems (300/400/5000series)
85Mb Standard System - £259
Pro System - £289
120Mb Standard System - £299
Pro System - £339
213Mb Standard System - £399
Pro System - £439

Original A3000 Solutions -
Hard box (including fan, power supply, interface card, and hard drive) - plugs into external expansion socket. Easy to install and portable.
85mb £329
120mb £379

A3000* + A4000 Solutions -
Our cards are available in internal versions for these machines -
Simply add £75 to the above prices for an external drive case and power supply. The standard system is also available with a user port, Midi interface and sound sampler - add £99 to the above prices.

CD-ROM, Magneto-Optical, Tapestreamers, Floptical etc also available. Please contact us for details.

IDE Systems

Internal (A3000* and A4000 series)
Using 2.5" Conner or Maxtor drives.
60Mb £299
80Mb £369
120Mb £479

A5000 Extra IDE Drive

Includes all necessary cables.
Using High-Quality Conner, Quantum or Maxtor drives
120Mb £259
170Mb £289
212Mb £359

* includes A3000/A3010/A3020

All prices exclude VAT and delivery

Add £9 delivery

This is obviously only a small selection of all the products we sell. For a full list or the price of a particular product please contact us.

QD COMPUTERS
30-33 SOUTH ST.
CHICHESTER
W.SUSSEX PO19 1EL
TEL: (0243) 531194
FAX: (0243) 531196

Micro Laser Designs

Bishop Sutton
Bristol AVON
BS18 4UJ

A5000 2M HD 80 Multiscan	£1390.00
A5000 Learning Curve	£1430.00
A5000 4M HD 120 Multiscan	£1590.00
A540	£1990.00
A4 2M FD	£1390.00
A4 4M HD 60	£1690.00
LaserDirect Hires 8	£1279.00
LaserDirect Hires 4	£899.00
FREE copy of ArtWorks with 4M HD 120 A5000	

Scanlight Professional	£529.00
with SCSI	£699.00
ScanLight 256	£179.00
BJC800 colour, driver & lead	£1499.00
BJ10ex driver & Lead	£249.00
FAXPACK	£279.00
CC/Wild Vision Colour Card	£249.00
Impression II	£124.00
Impression Junior	£79.00
ArtWorks	£139.00

Professional DTP System
Acorn A5000 4Mb HD120, Multiscan, Impression II, ArtWorks, Scanlight 256 Scanner, LaserDirect Hi-res 4, FAXPACK (Direct link to our bureau) £3495.00

Acorn **Authorised Dealer**

CD ROM package incl. SCSI card, leads, speakers, Creepy Crawlies, Grooves & Image Warehouse £649.00
(other packs available)

DTP SPECIALISTS

We can supply complete DTP systems for home or professional use. We offer advice on configuration and can then tailor a system to your exact requirements. Full after sales service including imagesetting and printing of your finished documents.

IMAGESETTING SERVICES
Your Impression II, Artworks, Sprite, Drawfiles etc. output to Bromide or Film up to A3 size with crop marks. Resolutions of up to 2400dpi available.

MONO & COLOUR LASER PRINTING UP TO A3
Send us your files via FAXPACK for prompt service!

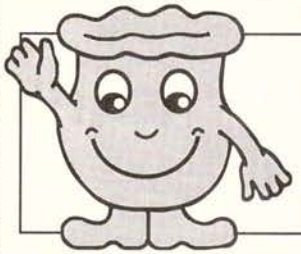
All offers subject to availability. Callers by appointment only.
Prices and specifications may change without notice - Catalogue available.

Carriage free, please add VAT @ 17½%

☎ & FAX (0761) 453308

FREE Information Pack

on Educational software/resources



Pip Investigates
Dinosaurs
Datahandling for
Key Stage 1

Other programs and resources available to support the National Curriculum include:
Pigeonhole
Roamer Maths
All about Me
Funfair
etc.

NORICC
Northern Micromedia

NORICC
Resources Centre • Coach Lane Campus
University of Northumbria
Coach Lane • Newcastle upon Tyne
NE7 7XA
Tel: (091) 270 0424

ArtSchool

EASY TO USE ART AND GRAPHICS PROGRAM WITH BUILT IN HELP FOR NEW USERS

ArtSchool has been designed as a comprehensive Art program that would fill all the needs of Primary, Junior and Home users needs. It contains tools for pencil drawing, brush painting, spray painting, lines, circles, ellipses, rectangles, parallelograms, triangles etc. with graduated fill and 256 colours. Having the ability to use clipart discs and print on any printer, it also has a selective undo rubber and complete undo of the last operation. Together with the useful facility for a teacher or parent to be able to switch off tools which are not needed, this is the easiest art package ever.

Fully icon driven with built in help.
£29.95 inc vat / postage

Demo disc £5 refundable.
Educational discounts, licenses.

MICRO STUDIO
22 Churchgate Street, SOHAM,
Cambridgeshire CB7 5DS Tel.(0353) 624997

Twin peeps

Mike Cook creates an impressive 3D display system

Mike Cook is a senior lecturer in Maths and Physics at Manchester Metropolitan University. He has written over 100 articles and is the only person to have had something published in every issue of *The Micro User/Acorn Computing.*

ONE of the great driving forces behind my love of computing is my curiosity – I want to know what an idea will look like when it's realised. When I had the idea for this month's project I just had to complete it because I wanted to see what it looked like. While I could see that the idea would work I really had no idea how good it would be.

It all came about when the editor was telling me about 3D glasses and accompanying software. This set me thinking about producing a related hardware project, one that would not only give you a stereoscopic 3D view but allow you to see 3D in full colour.

The human vision system is a complex arrangement but the basic requirement for stereoscopic vision and depth perception is that each eye is presented with a different view. There are other requirements as well – those views have to be consistent with expectations but I will go into that later.

I came up with the idea of separating the images on the screen using a rotating shutter. The idea is quite simple: The left eye view and the right eye view are flashed alternately on the screen.

The screen is looked at through a pair of shutters that alternately cover and open over each eye in turn. In that way each eye receives a different image.

Single rotary disk

My first thoughts on how to make the shutter was to have a motor turning a disk with holes cut out of it. These should be arranged so that you would look through the disk and see through only one eye at any time.

However, there were two snags, first of all my eyes were not far enough apart to see through each side of the disk at the same time. This could have been solved by an arrangement of mirrors if it hadn't been for the second problem – the computer screen draws its picture from top to bottom. Now this is fine for the hole in the disc moving from top to bottom but the other eye has the hole moving in the opposite direction.

As this is in the opposite direction from the computer's scan, it simply did not work.

This was how I discovered that the shutters for each eye had to be moving in the same direction as the display scan. Now this either involved some complex arrangement of gears and pulleys, or using two motors.

I opted for the latter and so my Twin Peeps machine was born. This arrangement has also been dubbed *The Twin Windmills* or *The Nose Trimmer* by some of my colleagues.

The basic arrangement is shown in Figure I. It consists of two motors each with a five blade light chopper. The idea is that you look at your computer display through the space at the point between the line joining the two motors centres. The blades ensure that only one eye at a time will see the screen. Of course ➤

for this to work the motors have to be turning at exactly the same speed and have to be synchronised with the scan of the computer.

This might sound like quite a complex feat of control but to our rescue comes the phase-locked loop (PLL).

We have used this in the past in the Morse Code detector. Then it was used as a tone detector but here we are using it in a totally different way. Look at Figure II on the following page which shows the basic arrangement of a PLL. What happens is that any difference in phase between the reference signal and that from the voltage-controlled oscillator produces a voltage output from the phase comparator.

Phase-locked loop

Unlike the use of coloured filter glasses this system works best in bright light

This voltage is then filtered and applied to the voltage-controlled oscillator thus changing its output. This then forms a loop because a change in the voltage controlled oscillator will change the output of the phase discriminator.

Things are arranged so that the loop will stabilise and the output of the voltage controlled oscillator will match exactly, in frequency and phase, that of the reference signal. When this happens we say the loop is in lock.

This has many applications but what we need here is to synchronise the motor to the computer's display. The frame sync pulse indicates that the display is starting a new scan – this will be our reference signal. The motor is fitted with a reflective optical detector that gives a signal when the chopper blade is moved in front of it.

As the speed of the motor depends upon the voltage applied to it, and the motor speed controls the speed of the output from the optical sensor, we have in effect a voltage-controlled oscillator, Figure III.

Now all we have to do is produce the electronics to allow the motors to be synchronised with the display, Figure IV. As you can see, some of the circuitry is duplicated to allow for the control of the two motors. First of all we need access to the frame sync pulse.

On some models this can be obtained directly from the monitor output pin. However, pin 4 will deliver a combined sync signal. Alternatively you might like to use the video output connector but again this is not fitted on all models.

The combined sync or composite video signal is fed to a sync separator chip and the resultant frame sync pulse is sent to a divide by two circuit. This generates a square wave which is high for one frame sync pulse and low for the next.

This sort of signal is available from pin 7 of the sync separator but only when the computer is running in an interlaced mode. Personally I find this much too flickery for normal use on my setup.

The output of the divider is then fed to the reference input of the PLLs. In order to get the phase between the two motors correct you need to feed the two PLLs with complementary signals. This is no problem as the divider provides these signals.

However, due to the hardware inside the computer you need to be able to alter the phase to each PLL by 180 degrees. Therefore I have used a double-pole change-over switch that I have labelled the phase switch.

Finally, the output of the PLL is taken to a transistor which controls the motor. This transistor is also fed with a small fixed current which allows fine adjustment to the locked phase of the motor so the two blades can be precisely set up.

The positioning of the optical sensors can be critical. The optimum sensing distance for the ones I have used is 5 mm – if positioned closer they will not work reliably. Therefore, when setting it

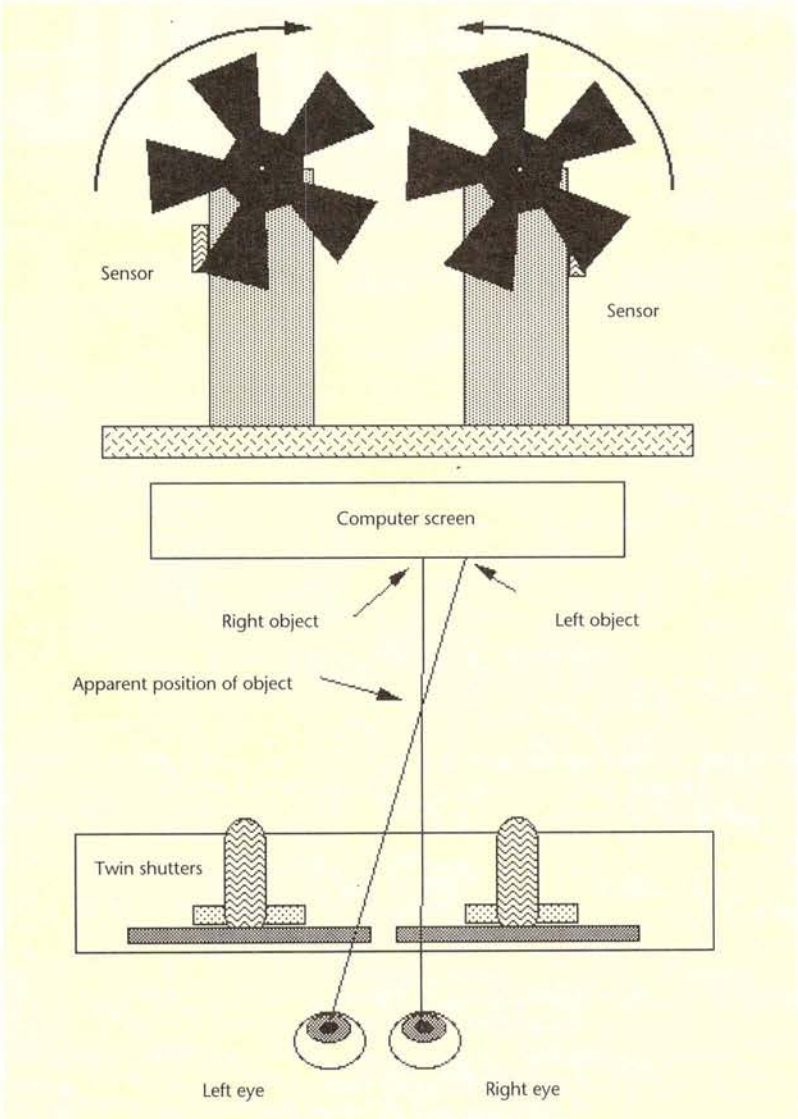


Figure I: Twin peeps – how it works

C.U. ELECTRONICS LTD

Computers, Upgrades and Electronics

Tel: 061 476 0576

Whilst Stock Lasts

A3010 2Mb inc 21Mb H/D
£559

A3010 2Mb inc 60Mb H/D
£649

A3010 2Mb inc 84Mb H/D
£679

Calling all A3000/A3010 Users

21Mb Internal Hard Card £179
40Mb Internal Hard Card £229
60Mb Internal Hard Card £259
84Mb Internal Hard Card £289

65a Middle Hillgate Stockport SK1 3EH.

Prices exclude VAT & P+P

ARM 35 Mhz PROCESSER £190	A3000 1-2mb £24	A3000 1-4mb £75
A5000 2-4mb £75	A310 4mb £160	A310 4mb + 35Mhz ARM 3 £339
MEMC1a £24	TELETEXT ADAPTOR (New Advanced Package) £94	UVIPAC (Universal Eprom Eraser) £15
UVIPROM (Eprom Programmer for BBC) £15		UVIPAC & UVIPROM PACKAGE £25

VISA GROUND CONTROL MasterCard

ELECTRONICS LIMITED

HOURS OF BUSINESS: 9.00 AM - 5.30 PM (24 HOUR ORDERING FACILITY)
PRICES EXCLUDE VAT, BUT INCLUDE CARRIAGE CHARGES (UK MAINLAND) PACKAGING AND INSURANCE

FOR FURTHER INFORMATION TEL: 0635 524008 or 0622 833023
UNIT 7, KINGFISHER COURT, HAMBRIDGE ROAD, NEWBURY, BERKSHIRE RG14 5SJ.

BEEBUG Magazine

the only magazine still devoted solely to the BBC Micro and the Master 128

Still going strong in its 11th year of publication

BEEBUG was the first magazine ever published to cater for BBC enthusiasts, and is still going strong after 10 successful years.

BEEBUG offers a wealth of information: from articles on how to write Basic programs to ready-to-use utilities and complete stand-alone applications. BEEBUG also offers frequent 'fun' programs and entertaining games.

If you want to find out more, write to us for a **FREE BEEBUG magazine** or phone on **0727 40303.**
Please quote this advertisement to receive your free magazine.

RISC Developments, 117 Hatfield Rd, St.Albans, Herts AL1 4JS

Software Bargains, a member of the Micro Power Group, are pleased to announce the ARRIVAL of the FINAL CONSIGNMENT of...

Unused!

£150 Ex Vat

BBC B Computers

Here are 8 good reasons why you should **ACT NOW** and buy a BBC!

- They are new
- At £150.00 they are **cheap**
- All machines are supplied with VIEW **word processor**, as standard!
- All machines are supplied with the **Disc Filing System** as standard! This means you can connect a disc drive straight away - our BBC drive pack is an incredibly low £195.70!
- All machines are supplied with a **Speech Rom** as standard!
- They include **additional safety features** such as steel re-inforced keyboards
- If you already have a BBC, our research shows that the **cost to repair/replace** the most common components to wear out, such as the keyboard or power supply unit, would be at least a half the cost of one of our new ones!
- Our new BBCs carry a 6 month **warranty**- probably twice as long as a repair warranty; plus, the guarantee is for the whole machine, not just on the component which has been repaired!

Monitors

Philips7502 Mono screen £85.06
Microvitec Cub 1431Colour£199.96
(14" Standard Res)
Microvitec Cub 1451Colour£238.26
(14" Medium Res)
Microvitec monitors are of the highest quality, with strong metal casing!
BBC Connecting cable - FREE
Prices exclude VAT: add £3.50 carriage

BBC Disk Drive Pack!

BBC Pack 1 .....£195.70
Includes BBC B and a greyhound single 5.25" 40/80 track drive without Power Supply Unit

Greyhound single 5.25" drive 40/80 track drive without PSU available as single units ...£68.04

Limited Stocks!

Why do we say "Unused" rather than "Brand New" ?
These machines were originally Manufactured for export to America. Having now shipped them back we have to make various Modifications, which includes fitting a U.K power supply and TV Modulator, for effective, safe use in the U.K. So they are not "straight from the factory" but nonetheless they have **never been used**.
A full specification is available on request.

Software Bargains & Mercury Games
Dept AC453, C/O Northwood House, North Street, LEEDS LS7 2AA
TEL: 0532 436300 FAX: 0532 423289
For 1-4 units Contact Software Bargains

Greyhound Marketing Ltd
Dept AC453, Cliffdale House, 376 Meanwood Road, LEEDS LS7 2JH
0532 621111 Fax 0532 374163
For 5 or more units contact Greyhound Marketing Also for TRADE enquiries

- Please add VAT to all prices, including carriage
- Carriage £2.50 per unit pack, multiple orders POA
- Official Local Authority orders welcome or Independent schools, headed note paper with Headteacher's signature
- Goods despatched within 48 hrs. (subject to availability)

Whilst every effort has been made to ensure the accuracy of this information we reserve the right to make changes & alterations without prior notice. Please note that these computers may not be compatible with all UK BBC B software, nor with hardware add-ons. (Prices are correct at the time of going to press. E&OE)

SSERCSOFT 93

Software for Serious Science & Technology

SSERC GRAPHICS LIBRARIES

FOR DRAW, DTP, VECTOR, ARTWORKS, MAGPIE, GENESIS etc
Only £10.50 + vat per disc. Version 8.01 = 8 discs
Version 8.01 - Chemistry, Interfacing, Technology, Electronics, Physics, Utilities, Circuit Boards (E&L and Alpha)
June '92 update discs - Update 1 & Cell Biology
Buy 5 or more discs - free SITE LICENCES on all
November '92 update discs - MOLECULES_1, MOLECULES_2, TECHNO_2, TECHNO_3, BODYBITS.
All at £10.50 + vat . Send for FULL DETAILS of all discs before deciding upon the graphics you want.

SSERC !DRAW PRACTICAL GUIDES - £12.60 + vat
100 pages, A4, loose leaf. Get the most out of DRAW for minimal cost. Includes 2 discs of exercises

COMING SOON - The SSERC GRAPHICS CD-ROM
7000 FILES : EASY KEYWORD ACCESS : NEW

SSERC CHEMICAL MODELLER (V. 3.1) - £52.50 + vat
This substantial piece of software needs 2 Mb min. & includes Teacher & Pupil Guides. GET INFO NOW!

Please make all cheques payable to SSERC
SSERC, 24 Bernard Terrace, Edinburgh EH8 9NX
Tel. 031 668 4421 for more information
or send a stamped (£1 please) self-addressed envelope

➤

up test that the outputs of the 74LS13 are switching, use an oscilloscope or LED to make sure each blade is being sensed.

Having set up the bank swapping all you have to do is draw each image into a separate screen bank. If you draw an object that is in the same position in each screen bank it will appear to be in the same plane as the screen.

If the object is displaced to the right in the other screen bank it will appear to be in front of the screen. If placed to the left it will appear to be behind the screen. See the diagrams.

I have written a set of demonstration programs that illustrate the different ways of producing a stereoscopic 3D image. These are on the subscription disk or can be ordered from Musbury Consultants. There is also a version for coloured glasses of those suitable for that technique.

All the parts of this system are available from Musbury Consultants. However, as the motors are expensive I have arrange for three kits, one for the electronics and the other two for the motors. I used servo motors with attached gear boxes for ease of construction but these are quite expensive.

I have found some alternative lower cost motors that should work. However, you could use motors you have to hand or from another supplier. The basic requirement is that one shutter blade must pass in front of the eye in 1/50th of a second and the gap between the blades in the same time.

Now you can change either the motors free running speed or the number of blades so that this requirement is met. You can use the formula:

```
N = 1500/R
```

or:

```
R = 1500/N
```

where *R* is the motor speed in rpm and *N* is the number of the shutter blades.

I used *N* = *5* which gave the motor speed, *R*, as 300 rpm. In fact the gear box and motor combination I used produced 250 rpm at 12 volts and so I had to run the motor voltage a little higher at 14 volts to get the correct speed.

This is not very critical as the synchronising electronics can compensate for a reasonable spread of motor supply voltages. The low cost motors run at 330 rpm so they will require a slightly lower voltage.

It is likely that you will have some motors but not know their speed. You can find out if they are suitable with a simple experiment.

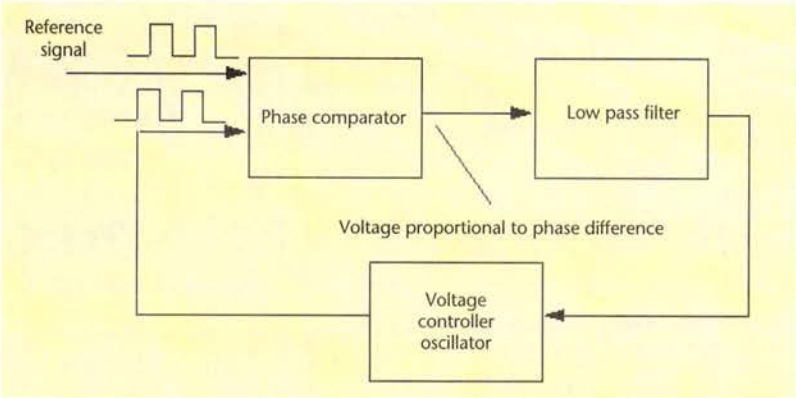
Make a shutter using any number of blades but remember it has to be an odd number. Then while running the red/green screen demo adjust the voltage fed to the motors with a variable bench supply and see the point where you can get stationary stroboscopic red/green triangles. If they are too small you can use fewer blades.

I used cardboard to make the blades. Anything else can be a little hard on the nose if you look too close. The side of the blades facing the optical sensors had white paper stuck on them and the side you look through was painted black. This improved the contrast.

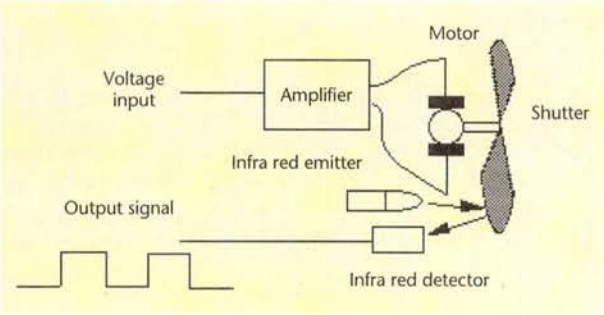
Unlike the use of coloured filter glasses this system works best in bright light. I found with the lights turned off the persistence of the phosphor on the screen coupled with the increased sensitivity of my eyes allowed me to see a ghost of the image that was supposed to be shuttered out.

To fix the blades on the motor I broke open a knob designed to be fixed on to a rotary volume control. I glued the metal insert on to the cardboard and used the grub screw to attach it to the gearbox shaft.

● *Next month we'll take a closer look at the software and some of the techniques you can use to display 3D pictures using digitised images or computer generated ones.*



● *Figure II: Block diagram of a phase lock loop*



● *Figure III: Turning a motor driven shutter into a voltage controlled oscillator*

Body Building Pack Order Form

The electronic synchroniser board (Kit)	£36
Body Build Pack No. 85b Two servo motors and gearbox	£95
Body Build Pack No. 85c Two low-cost motors with built-in gearbox	£40
32-bit software(includes digitised examples)	£2

Name.....

Address.....

.....

.....Post Code.....

All prices include VAT and P&P. Educational establishment orders accepted.
If you don't want to cut out the coupon then simply write what you want.

Make cheques payable to Musbury Consultants and send to:
5 Helmshore Rd. Haslingden Rossendale, Lancs BB4 4BG.

Foreign orders add £3 if paying by Eurocheque *(for bank clearing charges).*

V32bis Fax/Modem (14400 bps).....£250 XVAT
20Mb SCSI Ext Floppy Drive.....£124 XVAT
20Mb SCSI Ext Floptical Drive.....£299 XVAT
88Mb Ext SCSI Syquest Removable.....£480 XVAT
513Mb Fujitsu SCSI Hard Drive.....£759 XVAT

Commercial & PD Software

Send me a disc and a stamp I will return the disc with FREE PD and a catalogue

Bits 'n' Bytes
26 Grenville Road, Plymouth, PL4 9PY
0752 667599 - phone until 8PM each night

STATISTICS
FIRST *IS NOW MULTI-TASKING!*

Our **new enhanced** products
1st and 1stJR
Have been released

For full information contact:

Serious Statistical Software
Lynwood, Benty Heath Lane, Willaston,
South Wirral L64 1SD
Tel: 051 327 4268

Someone's just got their copy of
TableMate

- Simply the easiest way to create tables for Impression II & Junior (Editable inside Impression) or as Draw Files.
- Quick and easy to use - special editing features save you hours of effort! Phone ('til 8pm) or SSAE for details.
- Only £21 inc. p&p until 31st May £22-50 after 1st June (sorry!)

"strengths lie in the way it lets you make changes"
"This is a useful utility"-Acorn Computing, March '93

Dalriada Data Technology, 145 Albion Street, KENILWORTH
Warwickshire, CV8 2FY. Phone: (0926) 53901

Pour Continuer...French without fear...£29.00

"The content is full of lovely graphics.. The samples speech is clear– aimed at primary aged children and easily set up & used by parent or teacher... cover a whole range of skills... an excellent way to start learning French",– Acorn Comp Feb 93

- Teach French .The most comprehensive package for teaching French ever produced on the Archimedes
- Easy to use– created using the producers programming system–object orientated. If you can follow a set of arrows you can program!
- Use with... either the Archimedes or Concept® keyboard
- An excellent addition to any first course.

Many other titles available for example Dom, Number Run, Champion Racer, Finders Keepers.

Partners in Education Ltd

Call or write for more details
No.1 Clubley Estate, Mont-á-l'Abbè
St. Helier, Jersey, Channel Islands
Tel: 0534 74005

Please add £2.50 P&P

34 Norbreck Close, Great Sankey, Warrington
Cheshire WA5 2SX.

THE DATA STREAM

Normal discs £1.00, Pic'n'Mix Discs £1.50.

Special Offer Packs - Six Discs for ONLY £3.99

SPECIAL OFFER NUMBER ONE - Starter Pack
Catalogue, Extra Disc of PD (see below), A disc full of useful PD utilities, Son of Gyrinus (The BEST PD game!) Armageddon Megademo (the most popular demo), A disc full of outline fonts (different from Special Offer Two!)

SPECIAL OFFER NUMBER TWO - Desktop Publishing Pack
Three discs full of high quality draw-file clip art, Two discs of outline fonts and a disc with some useful utilities.

SPECIAL OFFER NUMBER THREE - Games Pack
Son of Gyrinus, Lemings, Invaders (2mb), KORC (Top adventure game!), Styx, TBVG and Tertis.

Send £1.00 for a copy of our latest catalogue, OR send £1.50 for a copy of our catalogue and an extra disc with around 1600k of compressed PD.
PLEASE MAKE CHEQUES PAYABLE TO 'THE DATA STREAM'

TT Turing Tools
149 Campbell Rd, Cowley, Oxford OX4 3NX, UK
Tel (0865) 775059

!IronMask File Security System

!IronMask 1.2 Personal Edn. £49.00 inc.

Damage, theft and snoop protection for key files and directories. Drag-and-drop with password to secure or release. Secure files are completely shielded from access, use or modification and can only be released through !IronMask.

!IronMask 2.0 Multi-User Edn. £65.00 inc.

All the capability of !IronMask 1.2, plus: Up to 64 PIN identified users under superuser / administrator control. No-body can run !IronMask 2.0 processes without a PIN. Passwords can be defaulted to PIN for easy use. Time-out feature guards against opportunistic entry. Superusers can "freeze" strategic directories - contents can be read or run transparently but modified or deleted only with super-user identification.

Prices quoted for 1 computer. No VAT. British Isles postage included. Overseas add £3.00. ☎ for educational and site prices, further information or factsheets.

Don't go to the ends of the earth for Good PD Software

Instead go to Arch Angel ·The PD Library·
with more than 650 discs

PD Software that zaps the rest for £1.25 per disc
B03 - PowerBase - A fully functioned database
L31 - Gyrinus 2 - The Power Game that tests your skill

Send £1 for the unique Pick n' Mix Catalogue & Sample Disc
(you won't bin this disc)
Dep AC5, Arch Angel, PO Box 41, Exeter, EX4 3EN - Tel 0392 422759

SOFT . . SECTOR . . **Tel: 0962 863225**

UNBRANDED DISKS: SONY, VERBATIM, KAO, DYSAN etc.
(Subject to availability). 100% Certified Guaranteed Error Free

	10		10
3.5" DSDD	£5.50	5.25" DSDD	£3.82
3.5" DSHD	£10.58	5.25" DSHD	£6.11

FREE library case with each pack. **All disks come with labels, 5.25" with envelopes + label sets.**

Enquiries welcome for Bulk Orders

LOCKABLE DISK BOXES

40 Cap 3.5"	£5.95 each
80 Cap 3.5"	£6.59 each
120 Cap 3.5"	£8.80 each
50 Cap 5.25"	£6.50 each
100 Cap 5.25"	£7.40 each

ACCESSORIES

Library Cases 10 Cap 5.25"/3.5"	£1.20 each
Mouse Mats Red, Blue or Grey	£2.75 each
Disk Labels 3.5" £1.40 per 100	5.25" £1.80 per 100
Disk Envelopes 5.25"	£3.65 per 100

Printer Ribbons for most printers - Original and Compatible – RING FOR PRICES
ALL PRICES INCLUDE VAT - NO EXTRA CHARGE FOR POSTAGE & PACKING
GOVERNMENT AND EDUCATIONAL ENQUIRIES WELCOME
SOFT SECTOR 58 Andover Road, Winchester, Hants SO22 6AG

Line of least resistance

Cyberdoc brings a little understanding to resistor colour coding

THIS month's program is a little longer than usual but it is well worth typing in. It's all about those little striped components that you see all over electronic circuit boards. These are called resistors and their job is to regulate the flow of electricity.

The coloured stripes on a resistor indicate its value. This is a measure of how hard it is for electricity to travel through that part of the circuit. The program can tell you what the coloured stripes mean.

Most resistors have four coloured stripes. The first three tell you the value while the fourth lets you know how accurate the device is. It is the first three stripes that this program is about.

Ten different colours are used and each of the colours represents a digit from 0 to 9. The first two bands are used to represent actual digits. The third band tells you how many zeros to add after the first two numbers. For example, red is used to represent 2.

If a resistor has three red stripes it means that its value is given by a 2 and another 2 and then two noughts. That is 2200 or two thousand two hundred. The units of resistance are called ohms after Georg Ohm, a German scientist who first developed a real understanding of this topic. If you enter a value into your computer the program will work out and tell you the colour bands that give that value. Alternatively you can enter the colours and be given a value.

Those who like improving programs could actually use the colours rather than words on screen. Or perhaps a title page with a picture of a resistor could be added. Those who just want to use the program should find it a useful aid to memory for science or technology projects.

● *Next month's Cyberdoc program will show you how to create your own science quiz with an emphasis on the solar system.*

> Their job is to regulate the flow of electricity

```
   10 REM RESISTOR DECODER
   20 REM By Rog Frost
   30 REM
   40 MODE6
   50 VDU23;8202;0;0;0;
   60 PROCinit
   70 PROCmenu
   80 END
   90 DEFPROCinit
  100 DIMcolour$(9),stripe%(3)
  110 FORN%=0TO9:READcolour$(N%):NEXT
  120 DATABlack,Brown,Red,Orange,Yellow,
Green,Blue,Violet,Grey,White
  130 ENDPROC
  140 DEFPROCmenu
  150 VDU19,0,4;0;
  160 PRINTTAB(7,2)"RESISTOR COLOUR DECO
DER"TAB(7,3)"----------------------"
  170 PRINTTAB(1,8)"The options are :-"
  180 PRINTTAB(1,12)"1)..Find the value
of a resistor from"'" its colour bands."
  190 PRINTTAB(1,15)"2)..Find the colour
 bands that"'" correspond to a particula
r value."
  200 PRINTTAB(1,21)"Press 1 or 2"
  210 G$=GET$
  220 IF G$="1" PROCcols:ENDPROC
  230 IF G$="2" PROCvals:ENDPROC
  240 GOTO210
  250 DEFPROCcols
  260 CLS
  270 PRINTTAB(1,2)"Press Space to move
cursor."
  280 PRINTTAB(1,4)"Press Return to conf
irm."
  290 PRINTTAB(0,6)"Colours"TAB(8,6)"Ban
d 1"TAB(15,6)"Band 2"TAB(22,6)"Band 3"TA
B(30,6)"Colours"
  300 FORN%=0TO9:PRINTTAB(0,N%+8);colour
$(N%)TAB(30,N%+8);colour$(N%):NEXT
  310 FORband%=1TO3
  320 P%=8
  330 REPEAT
  340 COLOUR1:PRINTTAB(band%*8+2,P%)"*"
  350 *FX15,0
  360 G%=GET
  370 COLOUR0:PRINTTAB(band%*8+2,P%)"*"
  380 IF G%=32 P%=P%+1
  390 IF P%>17 P%=8
  400 UNTIL G%=13
  410 COLOUR1:PRINTTAB(band%*8+2,P%)"*"
  420 stripe%(band%)=P%-8
  430 NEXT
  440 PROCnotation
  450 value$=STR$(stripe%(1))+STR$(strip
e%(2))+STRING$(stripe%(3),"0")
  460 PRINTTAB(1,19)"Resistor value is "
;value$;" ohms (";notation$;")"
  470 PRINTTAB(2,21)"Press Space to work
 out more values"
  480 PRINTTAB(2,22)"Any other key for m
enu"
  490 G%=GET:IF G%=32 THEN260
  500 CLS:PROCmenu:ENDPROC
  510 DEFPROCvals
  520 CLS
  530 PRINTTAB(1,3)"Resistor value (numb
ers only) "
  540 INPUT"  ";val$
  550 stripe%(1)=VAL(LEFT$(val$,1))
  560 stripe%(2)=VAL(MID$(val$,2,1))
  570 stripe%(3)=LEN(RIGHT$(val$,LEN(val
$)-2))
  580 PRINTTAB(1,7)"Colour bands for you
r resistor are :-"
  590 PRINTTAB(1,9)"1...";colour$(stripe
%(1))TAB(1,11)"2...";colour$(stripe%(2))
TAB(1,13)"3...";colour$(stripe%(3))
  600 PRINTTAB(1,20)"Press Space for mor
e"
  610 PRINTTAB(1,22)"Any other key for m
enu"
  620 G%=GET
  630 IFG%=32 THEN520
  640 CLS:PROCmenu:ENDPROC
  650 DEFPROCnotation
  660 IF stripe%(3)=0 notation$=STR$(str
ipe%(1))+STR$(stripe%(2))+"R"
  670 IF stripe%(3)=1 notation$=STR$(str
ipe%(1))+STR$(stripe%(2))+"0R"
  680 IF stripe%(3)=2notation$=STR$(stri
pe%(1))+"K"+STR$(stripe%(2))
  690 IF stripe%(3)=3 notation$=STR$(str
ipe%(1))+STR$(stripe%(2))+"K"
  700 IF stripe%(3)=4 notation$=STR$(str
ipe%(1))+STR$(stripe%(2))+"0K"
  710 IF stripe%(3)=5notation$=STR$(stri
pe%(1))+"M"+STR$(stripe%(2))
  720 IF stripe%(3)>5 notation$=STR$(str
ipe%(1))+STR$(stripe%(2))+STRING$(stripe
%(3)-6,"0")+"M"
  730 ENDPROC
```

Acorn COMPUTING guide to local dealers

ESSEX/HERTFORDSHIRE

Broad Oak Computers

The Complete Service

TRAINING

Get the most out of your A3000, A3010, A4000, A5000, Impression, Schema, First Word Plus, Squirrel, or Basic V with the help of our friendly training courses.

- ✓ After Sales Support.
- ✓ Telephone Help Service.
- ✓ Free Local Installation.
- ✓ CD ROM Systems.
- ✓ Free Demonstrations.

Correspondence and "Hands On" courses.

Call us for a Music Demo.

☎ 0279 718767

Hatfield Broad Oak, Nr. Bishops Stortford, CM22 7HE

CUMBRIA

CSS Computer Centre
Acorn Education Centre
Acorn Unix Centre

Acorn The choice of experience

SJ RESEARCH

Showroom open 9-5.30
Six days a week
Training. Free fitting of add ons
Repairs and maintenance

NEW: A3010, A3020, A4000, A5000 & Pocket Book now in stock

CUMBRIA SOFTWARE SYSTEMS LTD
Unit 3A, Townfoot Ind. Est., BRAMPTON
CUMBRIA CA8 1SW
☎ 06977 3779
Acorn Authorised Education Dealer

HERTFORDSHIRE

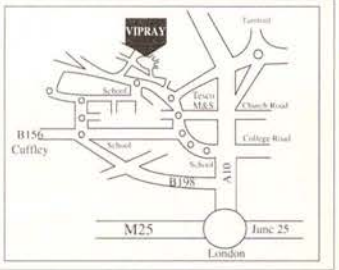
VIPRAY Computer Supplies

3 Miles from J25 on the M25

3 Spicersfield, Cheshunt, Herts. EN7 6BQ. Tel 0992 25640 (24 Hrs)

The Friendly Acorn Dealer

Educational & Desktop Publishing Specialists



Access VISA

WEST YORKSHIRE

Davyn Computer Services

For the best service in Yorkshire (we think) CALL US!
For A3000, A4000, A5000 Series, A4 Portable & Acorn Pocket Book
Visit our showroom
Open Mon-Sat 9.30 - 7.30 & Sun 10.00 - 3.00

Tel (0924) 254800

Printer & Ribbon Sales
Expert Advice & After Sales Service
Service & Repairs to All Equipment
Full Range of Acorn Hardware & Software
(We operate the Acorn Finance Schemes)
Full Range of Educational Software in stock & on DEMO

The 'Workshop', off Princess St, Sandal, Wakefield, West Yorks, WF1 5NY

Acorn SQuirreL CITIZEN Calligraphy

NORTHANTS

Kettering Computer Centre

NORTHANTS LARGEST ACORN DEALER

Extensive range of software, peripherals and upgrades

Special needs and educational orders welcome.

Please call us to discuss all your Acorn requirements

0536 410070

Allbury Ltd, Midland Bank Chambers,
15/17 High Street, Kettering, Northants NN16 8ST

Access VISA

WALES

Acorn Replay UNIQUEway

THE OFFICIAL ACORN REPLAY COMPRESSION CENTRE
Authorised Acorn Dealer and Value Added Reseller, Multi-media Video and DTP are our speciality. A5000, A4, A3010, LaserDirect and CD-ROM systems always on display. RISC OS 3.1 upgrades available NOW! Full range of games and software on display.

Technical Support - Home Demonstrations
Telephone Sales

VISA

42 Crwys Road,
Cardiff, CF2 4NN
Tel 0222-644611 Fax 644622

Access

LANCASHIRE

MICRO-TECH

BUSINESS, HOME & EDUCATION
COMPUTER SYSTEMS

ACCESSORIES SOFTWARE CONSUMABLES

Help and advice in plain English,
After sales service.

061-797 6419

286-288 Walshaw Road, Bury BL8 1PY

CLEVELAND

YARM COMPUTERS

HARDWARE – SOFTWARE – PERIPHERALS
SUPPLIES TO EDUCATION, BUSINESS AND HOME

ACORN DEALERS

IBM compatibles built to customer requirements

THE LEARNING CURVE

Discount offered with all cash sales!

E&OE

Stockists of:

A3010 Family Solution	£499.00
A3010 Learning Curve System	£799.00
A4000 Home Office System	£1173.83
A5000 Learning Curve	£1699.00

Complete range of Acorn systems available

TELEPHONE ORDERS WELCOME

WINPENNY HOUSE, 137 HIGH STREET
YARM, CLEVELAND TS15 9AY

TEL: 0642 786922
FAX: 0642 783740

BRISTOL

C.J. COMPUTING
COMPUTING
The Educational Computer shop

Acorn

Authorised Acorn Education Dealer

57 Westbury Hill Westbury on Trym
Bristol BS9 3AD
0272 624553

BIRMINGHAM

DACO SYSTEMS

459-463 Warwick Road, Tyseley, Birmingham B11 2JP

Your Birmingham & Solihull Acorn Dealer

• Special Needs • Business •
• Education • Home Use •

Tel: 021-706 8933

MIDDLESEX

We Have Moved

JR Letronics Co

ALL THE LATEST RELEASES CAN BE ORDERED

- Samsung PC's and others
- Discs & Paper
- Computer Peripherals
- Documentation
- Educational & Business Software

☎ 081-977 8053 and Fax

Also ☎ 081-977 7778

THE LEARNING CURVE

Acorn
The choice of experience
Authorised Dealer

We Have Moved

30 High Street, Hampton Hill, Middlesex TW12 1PD
After sales helpline – We try to help
Open: 10am-5pm Mon–Sat

Acorn COMPUTING guide to local dealers

SCOTLAND

the computer depot

SCOTLAND'S LEADING MICRO SPECIALISTS

We match most other advertised offers.

Commodore ATARI Acorn Educational Dealer AMSTRAD CITIZEN

205 Buchanan Street,
Glasgow G1 2JZ
Tel: 041-332 3944
Fax: 041-332 0560

55 Clerk Street,
Edinburgh EH8 9JQ
Tel: 031-668 4146
Fax: 031-667 0898

Workshop Direct Line Tel: 041-332 0625

Access **Mail Order Service** VISA

WALES

CARDIGAN Electronics

Computing and Electronics for Business Education & Leisure

YOUR ACORN SPECIALIST IN WEST WALES

ACORN DEALER FOR TWELVE YEARS

Hardware-Software-Sales-Service-Support

Call and try the Acorn A3010 range.

The BEST now costs less – Acorn 32 bit RISC from as little as £499

Chancery Lane,
Cardigan,
Dyfed
SA43 1HD

We are a major TANDY Electronics stockist too.
CLOSED WEDNESDAYS, OPEN SATURDAYS

MAIL ORDER SERVICE

0239 614483

Call for Impression & CD Rom demonstrations.
Education orders welcome.

Access VISA

CUMBRIA

Kendal Computer Centre

- Acorn, Commodore, Samsung and PC dealer
- Full repair/service facilities
- Hard disk/memory upgrades always in stock.

See Acorn machines on demonstration in our showroom.

Open 9am - 5.30pm Mon-Fri, 10am-4.30pm Saturday.

68 STRAMONGATE, KENDAL, KENDAL, CUMBRIA, LA9 4BD

Access **0539 722559** VISA

DERBYSHIRE

HONORMEAD SOFTWARE SOLUTIONS

Acorn **Specialist in Computer Solutions for Education and Home User.** SEMERC dealer

- ★ Now stocking a wide selection of educational software and specialist equipment such as Concept Keyboards, TouchWindows, etc
- ★ Packages tailored to meet individual requirements.
- ★ **Friendly professional service**
- ★ **Free Consultancy**
- ★ **Demonstrations**
- ★ **Training**

0% Finance

Call us for a free information pack or visit our showroom at:

ADMIN HOUSE, THE GRANGE, HOSPITAL LANE, MICKLEOVER, DERBY DE3 5DR
TEL: (0332) 512848/510951 FAX: (0332) 512867

To reach your local customer. Call Freddie on 0625 859555 Now!

Contex Computing

Established 1983

BANK MANAGER

Complete and versatile personal accounts program. Consistently acclaimed!

'data entry is a delight... professional...excellent product"
'impressed...ideal...easy to use'

Enter cheques and receipts. Automatic date sequencing. Reconcile statements. Search, amend and delete. Analyse expenditure. Forward cash flow forecast. Budgets. Up to 36 Bank accounts online, inter account transfers, 9999 standing orders, 99 analysis headings, unlimited postings (depending upon disk space). Reports to screen or printer. Mix foreign currencies, graphics, password, file recovery, field editing, programmable reports, Arc RAM disks, wild card analysis enquiries, sort and more.

Bank Manager £25.00

BUSINESS UTILITY

For the club accounts or small business user. Prints a "trial balance" or "P&L reports" via the programmable spreadsheet generator. Needs the Bank Manager. Saves hours of work.

Business Util Pack £12.00

TYPING TUTOR

Quickly learn to touch type. Over 90 smoothly graded lessons graduate you from the basic home keys to complete keyboard mastery. Word scan or exact key checking, targets may be revised, rhythm metronome, key click, free format options. Recommended for adult education.

Typing Tutor £15.00

SPREADSHEET MK V

Low cost, versatile spreadsheet. 26 cols by 900 (Arch) or 99 (BBC B) rows, loaded with many functions and facilities inc programmable report writer and input scripts.

Spreadsheet MK V disk £15.00

Add £1 p&p per order (Overseas £3.50). Programs suitable for all Archimedes, A3/4/5000, BBC Master, Compact and BBC B series. State computer type (eg A3000, BBC B etc) and disk type (eg 3½" or 5¼" 80 track or 5¼" 40 track)

CONTEX COMPUTING
(Ref AC), 15 Woodlands Close,
Cople, Bedford MK44 3UE

VISA Access

Tel: 0234 838347

NEW

A3010 Family Solution
A3010 Learning Curve
A4000 Home Office
A5000 Learning Curve
A4 Portable
Acorn Pocket Book

*If it's made **by** Acorn Computers or it's made **for** Acorn Computers,*

THE DATA STORE

can help.

We'll be stocking all the new Acorn models to go with the vast selection of peripherals and software on our shelves. Try before you buy in our attractive showroom

6 CHATTERTON ROAD BROMLEY KENT
Tel: 081-460 8991 Fax: 081-313 0400

SENLAC Computing Limited

Art/Graphics
Artworks 145.00
Chameleon 2 ..... 42.00
GraphBox Pro 115.00
Illusionist 85.00
Imagery 82.25
Revelation 2 ..... 128.75
smArt 54.00
smArt Filer 38.00
Vector 89.00

Books
First Impressions 31.00
Good Impressions 29.00

Communications
ArcComm 2 ..... 55.00
ArcTerm 7 ..... 70.00

Databases
Flexifile 133.00
Squirrel 150.00

Score Draw 55.00
VoxBox 55.00
MIDI/Sampler (Econet) 75.00

Peripherals
Vision Colour Dig. (Int) 89.50
HiVisionColour Dig. (Int) 89.50
ScanLight 256 ..... 220.00
Scanlight Professional 640.00
with SCSI interface 790.00

Don't pay until you receive your order!
Cash-on-Delivery is available on orders up to £350 for only £3.50 extra.

Printers
Canon BJ-10ex 205.00
with CC Turbo Driver 255.00
Epson EPL-5200 Laser 669.00
Epson LQ570 ..... 290.00
LaserDirect HiRes 4 ..... 1050.00
Panasonic KX-P1124i 230.00

Spreadsheets
Eureka! 128.75
Pipedream 4 ..... 199.00

Bargain Box!
** Courier v32bis **FAX** Modem ..... **465.00**, with HST ..... **695.00** **
Saloon Cars 15.00
3D Construction Kit 22.00
Fax Pack 282.00
!Tracer 30.00
EasiWriter 120.00
Mid. Graphics Clips 1 ..... 25.00
ShowPage *(not RiscOS 3)* 90.00
EasiWriter 125.00
Enter the Realm 18.50
Cataclysm 18.50
Pandora's Box 18.50
Scalight 256 *(Arc)* 190.00
Limited Stocks!

DTP/WP
Impression 2 ..... 145.00
Impression Junior 81.00
Pendown Outline Fonts 19.95

Education
Fun School 4 (0-5) 21.00
Fun School 4 (5-7) 21.00
Fun School 4 (7+) 21.00

Hypermedia
Genesis 2 ..... 130.00
Magpie 56.00

Music
Notate 59.00
Rhapsody 2 ..... 55.00

Utilities
Arcticulate 19.00
Compression 48.00
Investigator 2.2 ..... 25.00
Speech! 16.50

Consumables
Box 10 x 3½" TDK DS/DD 8.90
Box 10 x 3½" TDK DS/HD 12.50

Games
2067BC 18.50
Aggressor 17.80
Aldebaran 28.95
Black Angel 29.95
Bobby Blockhead 17.50

All prices include VAT, post & packing

Break 147 & Superpool 29.95
Cartoon Line Part 1 ..... 19.50
Champions 25.25
Chuck Rock 21.75
Cyber Chess 43.00
Cyborg 22.50
E-Type Compendium 20.75
EGO: Repton 4 ..... 21.25
Fervour 21.75
Galactic Dan 21.50
Gods 21.75
Gribbly's Day Out 21.95
Grievous Bodily 'Arm 20.75
Guile 25.20
James Pond 21.75
Krisalis Collection 25.25
Lemmings 21.75
Oh No! More Lemmings 16.95
Legend' Lost Temple 19.50
Lotus Turbo Ch.2 ..... 21.75
Man Utd. Europe 21.75
Nebulus 21.75
Pesky Muskrats 21.95
Provocator 16.95
Quest for Gold 21.75
Raw Power 24.50
Saloon Cars Deluxe 29.95
Spheres of Chaos 21.25
SWIV 21.75
Technodream 21.25
Top Banana 21.25
X-Fire 20.75

Cheques/postal orders should be made payable to
SENLAC Computing Ltd. (AC0593)
P.O. Box 304
BRIGHTON, BN2 2TT
Don't forget to tell us which machine you have!
Please send a S.A.E. for our current price list.

VAT Reg No. 508 7594 16 Company Registration No. 2277309

12th successful year

Micro-Aid
SOFTWARE FOR THE BBC MICRO COMPUTER

GENEALOGY

(See review in Feb '87 and Aug '89)

FAMILY HISTORY SYSTEM The most popular program ever written for us. Enables you to produce a full family tree and many other genealogical listings.
BBC/Master/Compact version £21.95 Archimedes version £25.95

PAYROLL

EXTENDED PAYROLL Now in its twelfth year. The only BBC program for wages, tax and National Insurance for up to 400 employees cover... Four weekly and Monthly pay whether... of data per employee in t... employee infor... Extended t... Wages... the ten... type... annual contract keep you up to date with the budget changes. Send for demo disc **£59.95**

The only payroll program for Acorn Computers

BOOKKEEPING

(see review in March '89 Acorn User)

1) CASHBOOK Double entry bookkeeping for home or club use. All data kept in memory. Three character analysis code enables you to know where the money comes from and where it goes. 48 transactions per A4 page. Analysis summary up to 30 categories. **£14.95**

2) CASHBOOK D As 1) + random access giving 2000 items. CASH/BANK or VAT/BANK headings. Password control. String or numeric searches. For schools, clubs & non credit businesses. **£24.95**

3) ACCOUNT As 2) + Credit facility and statements. For small businesses working with credit. **£39.95**

4) ACCOUNT-PLUS As 3) + Invoicing, Orders, Quotations etc. Full sorting of data by 5 options. Automated statements, mailing labels. Multiple automatic nominal ledgers.
For independant schools and VAT businesses who wish to cut the effort. **£59.95**

5) TAXMAN This new program which has been under development for three years allows you to enter all your transactions and to printout end of year results with balance sheet and even calculate tax due. The Inland Revenue love it and so do we. Results can be taken from our other accounting programs and entered into TAXMAN making a superb combination. **£59.95**

6) MICRO-TRADER Is a full accountancy package with features right through to final balance sheet.
Stock Control at £88.13 extra. **£235.00**
For shops/firms, accountants wanting full accounting facilities. Payroll can be integrated. **£88.13**

MAILING

218 addresses in memory or up to 1875 on random access disc. Multiple selected and repeat labels, mail merge, full sorts. Ideal for subscription lists, promotions, any kind of mailing. **£14.95 or £35.95**

Ask for detailed brochure for more software and other items.

Demo discs available for £2.50 each. Micro-Trader £25. Prices include VAT add £1.00 p/p

PLEASE NOTE OUR MOVE & CHANGE OF ADDRESS FROM CORNWALL

[FAX AVAILABLE]
Kildonan Courtyard, Barrhill, S. Ayrshire Scotland. KA26 0PS.
Tel: 0465 82288

Access

Swapping the Midi

I HAVE recently bought a second-hand A540 and passed my Amiga 500 on to my son. My problem is that I am trying to load my Music-X performances into Rhapsody 2.

I am converting the performances to both Midi formats 0 and 1 by using a utility in Music-X. I transfer all the converted files on to a PC disk using the Messy Sid utility on the Amiga. However, when I put the PC disk into my A540, open the PCDir icon and copy all the files into a Rhapsody directory, Rhapsody tells me that it can only read and load standard Midi files in formats 0 and 1. Where am I going wrong? – **Philip King, Tamworth, Staffordshire.**

● **Ian Waugh replies:** *You seem to be doing the file swapping okay – fiddly isn't it? – but the Archimedes likes its files better organised than the Amiga and uses a system of filetypes to distinguish one from another. This is what helps give documents their individual icons.*

Before Rhapsody will attempt to load a file, it checks the filetype. If it's not a Rhapsody or Midi file it produces the error message you're getting.

The solution is to give the Midi files a Midi filetype which is &FD4 – a hex number – by pressing F12 to access the command line, changing to the directory which contains the files and typing:

```
*SetType <filename> FD4
```

You will need to include the full path – filing system name and directories – as well as just the filename itself, for example:

```
*SetType adfs::Charlie.$.Am-
igaPorts.Example1 FD4
```

That's it, but remember that you don't use the ampersand when entering the hex number. With Rhapsody loaded the file will now take the Rhapsody file icon and should load.

There are a couple of caveats: Music-X has some pretty strange internal music organisation functions and the file conversion routine is known to be bugged – more so in the conversion from Music-X to Midi than the other way around – so you may not have 100 per cent success rate with the conversions anyway.

Secondly, Rhapsody has limited internal quantisation and may play fast and loose with certain note lengths. Occasionally it may reject a file completely. A new version of Rhapsody is due soon from Clares, but I'd also check out their new sequencer, Serenade, which is a bit more sophisticated.

The value of EVAL

SOMETIMES it is necessary to let the user of a program decide when certain things should happen. For example, when you're writing a password program you may want to let the user limit when people can log on.

It would be useful to enter:

```
(USER$="MTF") AND (HOUR<14)
```

At first glance the implementation of such a command would need considerable programming, but in reality it is very easy.

This is where EVAL comes into its own. If the program itself sets all the variables:

```
USER$="MTF", HOURS=13, Mins=12,
DAY$="MON"
```

it is a simple matter of getting a string and applying EVAL to it. If all the strings are in the file Check and you have already set the variable, a function could be:

```
DEF FNcheck
X=OPENIN"Check"
REPEAT
INPUT#X,A$
UNTIL EOF#X OR (EVAL(A$)=FALSE)
CLOSE#X
=EVAL(A$)
```

The function, Check, would return the value TRUE if and only if all the criteria were satisfied. The EVAL command also lets you access function in the programs including mathematical functions.

Another tip to people who intend to play about with checking time is that the statements:

```
(HOUR=12) AND (MINS>30)
(HOUR>12) AND (HOUSE<14)
(HOUR=14) AND (MINS<30)
```

could all be turned into:

```
((HOUR*60+MINS)>12*60+30) AND
((HOUR*60+MINS)<14*60+30)
```

The same can be done with dates by multiplying the month by 32, and the fact that there are not 31 days in every month doesn't matter. – **Michael Farnworth, Atherton, Manchester.**

Improving on three dimensions

PRIZE LETTER

I LIKED the article on 3D isometric drawing in the February *Acorn Computing*, but I thought that the method of transforming the front and side views was rather cumbersome. In particular the need to re-trace the line afterwards if you want to have a closed shape that can be coloured in.

I wondered if it might be possible to perform a series of Draw transformations on a complete side – as a group – which would have the same effect. After a lot of mathematics and some experiments I came up with the following recipe.

Make the front view a group and perform the following operations:

- Scale by 8 in the X direction
- Rotate by -3.63 degrees
- Scale by 0.1081 in the X direction
- Rotate by 0.38 degrees

Similarly group the side view and do the same, but this time the rotations are +3.63 and -0.38 degrees.

Using this method, the three sides can be coloured and textured before transforming them. Under Risc OS 3 you can even include sprites and text as part of the object and transform that too. – **Mike Williams, London.**

Data transfer

AFTER 10 years I have accumulated a large library of Basic programs for the BBC B with a single DFS disk drive. Last year I decided to update my system to the A3010 on the understanding from my local supplier that I would be able to transfer all my data from 5.25in disk to the A3010. It became apparent that this was not possible though it is feasible with an A5000.

Yet the A3010 User Guide states that this can be achieved. I wrote to Acorn but they have not replied. Instead I had a note from Orion Electronics confirming that this cannot be done, which I find absolutely unbelievable.

I also wrote to Dabs Press regarding

their BBC compatible DFS disk filing system and to Watford with no success.

I refuse to believe that this is not possible and appeal to you. I feel a separate 3.5in drive could be part of the answer and I am prepared to invest in one if necessary.

I am sure that there must be very many BBC B users who like myself have finally updated to the excellent A3010 but find themselves in the same predicament. – Henry Badier, Stroud, Glos.

● *At present there are no companies producing hardware to link a 5.25in disk drive to the A3010, A3020 or A4000. However, it is perfectly feasible to link the two machines via their serial ports and have them communicate that way.*

Several products will perform the file transfer. Those by Risc Developments and Watford Electronics date back a long time and there's a more recent one from Really Good Software.

Tortoise or hare?

ANYONE who has ever looked at advertisements for IBM PCs will have noticed the emphasis placed on clock speed *a fast 33MHz* and so on as the main criterion for deciding which computer to buy.

Just recently our local astronomical society's newsletter had a short program in QBasic which simulated the appearance of a globular cluster which according to the accompanying blurb took six minutes to run on a 25MHz 386SX.

I tried this program using BBC Basic on the 32016 co-processor – 1986 vintage running at 6MHz – and was somewhat surprised to find that it ran in five minutes.

Even more interesting was the time taken for the 2MHz 6502 – 8-bit compared to 32-bit, 2MHz compared to 25MHz which, all else being equal, meant it should take 50 times longer to run, so did it?

No, it took just 35 minutes, only six times longer.

This led me to make more comparisons with a friend's 386SX 25MHz machine and my 32016 on various number crunching tasks like Mandelbrot sets. All ran in similar times on both machines – despite the 4 to 1 clock speed difference.

My conclusion is that there are two ways of achieving speed in computations: Use good architecture with compact and efficient code – Acorn machines – or mediocre hardware and software and very high clock rates: IBM PCs and compatibles.

Here's one of my test programs so you can check it out yourself:

```
10 MODE 0
20 A=2
30 B=40
40 C=400
50 J=400
60 pi2=2*PI
70 FOR I=1 TO J
80 L=(B-I)^A/C
90 FOR K=1 TO L
100 THETA=pi2*RND(1)
110 M=640+2*I*SIN(THETA)
120 N=512+2*I*COS(THETA)
130 PLOT 69,M,N
140 NEXT K
150 NEXT I
160 END
```

Do you think this is a fair conclusion or have I missed something? – **Gary Hughes, Mawson, Australia.**

● *Well, we're biased of course but you're correct. It's the quality of the software that makes all the difference, with the hardware making some impression when it comes to input and output.*

Adding to new Acorns

AT present I have an A3000 but am hoping to upgrade to an A4 or A5000 in the not too distant future. Is it realistically possible to upgrade an A4 with things like a bigger hard drive, an Aleph 486 PC card or even an ARM 6?

In PC speeds (MHz) how fast is the A5000? And can you add things to an Aleph 486 PC card like a sound board, extra memory or one of the new Sony CD drives?

Why are Acorn so rubbish at advertising their machines? Why can't they show off some excellent graphics or something rather than the Learning Curve advert which is about as much fun to watch as Eldorado.

And what about the bloke on the GamesMaster TV show who was meant to be selling the A3010. He was hopeless. To prove how well Acorn's advertising is doing – or not – how come Dominik Diamond thought that 32-bit machines were bit of a new thing. The A3000 has been around for years. – **Ben Daniel, Romsey, Hampshire.**

● *An A4 can be given a bigger hard disk but there are no other internal upgrades apart from network expansion.*

Comparing an A5000 with a PC in terms of MHz is irrelevant as the ***Tortoise or hare?*** *letter shows. What counts is the power delivered to the user and there's no easy way of measuring that – although numerous benchmark tests have been created to try.*

The Aleph One 486PC card does not have expansion slots on it so you can't add anything of that type but you don't need to as software is available that allows the PC card to use the host machine's facilities.

Acorn's TV advertising was very precise in its target audience of concerned parents aged late twenties to thirties with young children who wanted to buy more than a games machine. I assume you're not in that group which is why it didn't appeal to you.

To people within the Acorn market the ideas of 32-bit machines, hard disks, laser direct printers, CD-Roms is all very simple and run of the mill. If you want to get an idea of how little computers are understood by the average person, try talking to one.

All programs printed in this magazine are exact reproductions of listings taken from the running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur, corrections are published as a matter of urgency.

Should you encounter error messages when you type in the program, they will almost certainly be the result of your own typing mistakes.

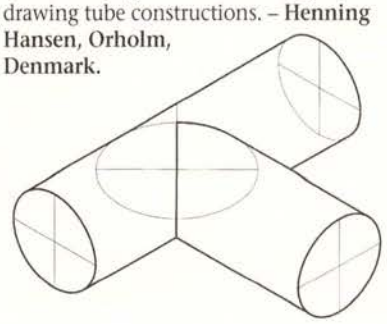
Unfortunately we cannot answer personal programming queries concerning mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in these pages

Travel by tube

I APPRECIATED your introduction to 3D drawing in the March issue, but I cannot let your tubing example go unnoticed. To cite the article *There is no easy way of producing the results of two intersecting tubes ....*

This may be true in the general case, but for tubes of the same dimension, positioned as in the example, you can do a lot better. In fact, one part of the intersection curve is a straight line, the other is part of an ellipsis.

Two joined tubes of the same dimension intersect in elliptical curves if they have intersecting axes. An understanding of this is necessary for drawing tube constructions. – **Henning Hansen, Orholm, Denmark.**



Want to write to us? The address is:

Letters, Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

Writers of the most interesting letters receive a £15 prize.

36 Park Rd,
Duffield,
Belper,
DE56 4GR

Smart DTP (0332) 842803

NEW Products FROM Smart DTP

Smart Borders 2 £9.95

Over 200 border designs for use with impression 2. Ideal for the business, school and home user alike. Treat your documents, for less than 5p a border

Smart Borders + *Artworks* £11.95 *Draw* £9.95

150 Border designs, available in !Draw and !Artworks format.

Smart Works £7.95

A must for every !Artworker this two disc package includes moulds, user manual support files, examples & extras

Smart Resources 2 *Artworks* £11.95 *Draw* £9.95

No acorn user should be without smart resources 2, two discs packed with vector art..... Stretch, Squash, Rotate, Expand without any loss of detail. Featuring:- Arrows, Borders, Corners, Drop capitals, Flashes, Rules, Symbols, Speech & Think bubbles & general clipart. !Artworks or !Draw format.

BudgetArt £17.95

A massive clipart collection (Draw & Sprites), 5 compressed clipart discs including, over 380 pieces of clipart. 20+ topics ranging from animals to musical instruments

Suitable for all 32-Bit Acorn's

Please make cheques payable to Smart DTP, also add £1 for P&P (FIRST Class)

TMJ

TMJ Computer Software

39a Station Road, Desborough,
Northants. NN14 2RL
Telephone/FAX: 0536 762713
*Online BBS Darkhaven: 0604 413716 (24hrs)

What You See is What You Pay

2067 BC	18.00	Flight Simulator Tool Kit	39.00	Manchester United Europe	23.00
3D Construction Kit	45.00	Fervour	23.00	Microdrive II	31.00
Aldebaran	31.00	Games Wizard	27.00	MicroDrive II Designer	31.00
Black Angel	31.00	Galactic Dan	23.00	Master Break	17.00
Blitz	20.00	Gribbly's Day Out	23.00	Nebulus	22.00
Break 147 & Superpool	30.00	Gods	23.00	Pandora's Box	22.00
Chocks Away	22.00	Guile	27.00	Para Droid	23.00
Chocks Away Extra	18.00	Hero Quest	27.00	Plat it Again Sam 1	23.00
Chocks Away Comp.	34.50	Ixion	23.00	Quest for Gold	23.00
Chamions Compendium	27.00	No VAT or P&P to add		Repton 3	17.00
Chopper Force	25.50			Saloon Cars Deluxe	30.00
Chuck Rock	22.00			Saloon Cars Xtra Courses	18.00
Cyber Chess	43.50	James Pond	23.00	Sim City	27.00
Cyborg	23.00	Last Ninja	23.00	Spheres of Chaos	23.00
Cyberzone	23.00	Lemmings	23.00	Swiv	23.00
Dreadnoughts	34.00	Lotus Turbo Challenge II	23.00	Technodream	23.00
Dreadnoughts Add on	16.00	Oh No! More Lemmings	18.00	The Real McCoy 2, 3 (ea)	26.00
Dungeon (coming soon)	31.00	Omar Sharif's Bridge	27.00	Waterloo	22.00
Elite Gold Edition	38.00	Populous	27.00	**DISCS**	
Enter The Realm	22.00	Karma - Flight Trainer	23.00	3.5 INCH DSDD 13 for	6.50
Ego : Repton 4	23.00	Krysalis Compilation	27.00	+ clear plastic wallet	7.25

NEW RELEASES

E - Numix	£18.00
Serpants	£18.00
Wolfpack	£19.00
Dragon Ball	£14.00
Card Mania£	£18.00
Crystal Rain Forest	£42.00

Sound & Music		**DTP**	
Digital Symphony	50.00	Impression II	161.00
Notate	63.00	Impression Junior	88.00
Rhapsody 2	53.00	Chameleon	37.50
Serenade	121.00	Pendown 2	57.00
Art & CAD		Start Write	73.00
Artworks	161.00	WORDZ (NEW)	105.00
CADet	170.00	**Utilities**	
Tracer	55.00	Compression	41.00
Illusionist	90.00	DBEdit (Basic Editor)	30.00
Revelation 2	125.00	PC Emulator	114.00
SmArt	54.00	**Education**	
SmArt files (each)	38.00	10 out of 10 Maths/English	23.00
Spreadsheets		10/10 Early Essentials	23.00
Eureka	132.00	An Eye for Spelling	37.00
Pipedream 4	199.00	Fun School 3, 4 (All Ages)	23.00
Schema	114.00	Landmarks	25.00
Home Accounts	41.00	Let's Spell (4 pack)	23.00

Ribbons & Covers	
KXP1080,1081,1180, 1123	4.50
STAR LC10 & NX1000	5.00
STAR LC200 Colour	13.75
Citizen 120D /Swift 24/24E	4.50
Citizen Colour 9/24/24e/224	14.00
Epson LQ 4/500/550/850	4.50
Epson LX80	1.50
H/P 500 Double Caps. Cart. Colour Cart.	24.00 27.00
A3000 Keyboard Dustcover	7.00
A3000 Keyboard & Monitor	10.00
A3010/3020 Keyboard only	7.00

Citizen 120D+	A3010 FS
£160.00	£499.00
Swift 9	A3010 LC
£192.00	£799.00
Swift 24e	A4000 HO
£299.00	£1174.00
cable & paper included	A5000 LC
	£1699.00

Visit our new shop in Desborough!
A3010 Learning curve & other products on display.

All prices include VAT and P&P - Access and Visa Accepted
Open Mon-Fri 9.30 - 12.30, 1.30 - 5.30; Saturdays 9.30 - 2.00

Astoundingly easy to use !
Acorn Computing Dec. 92

IMPACT!
The Database

A new easy to use database with direct Impression links

Impact! offers easy to use yet powerful features for home, office or school, at a sensible price. Visa & M.Cards welcome. Phone or write today!
£49.95 + VAT post free

Circle Software
33, Restrop View
Purton, Swindon
SN5 9DG
Tel: (0793) 770021
C.S.

Yes, only £5! DoggySoft £5!
Only £5! A mere £5! v3.04
The Hacker

The Hacker was the first cheat utility for the Archimedes, and is the best - its features are far more numerous and flexible then any other similar program, and it is extremely easy to learn and use due to its mouse-driven WIMP system, based on the RISC OS Desktop. It also has a Desktop tool to allow you create your own stand-alone cheats. The Hacker is now compatible with all Acorn 32-bit computers and costs a mere £5.

DISS **v1.10**
Diss
The definitive Desktop disassembler Only £10!

A must for all ARM coders - this easy-to-use WIMP disassembler includes flexible searches, useful labels, multiple files, easy editing (even mnemonics), lists, and thousands of other features not to be found anywhere else.
Diss costs a measly £10 - cheques payable to Ben Dooks

DoggySoft, 7 Blackhorse Crescent, Amersham, Bucks., HP6 6HP.
Cheques payable to 'Andrew Clover' or to 'Ben Dooks' for Diss.
Or... send just 50p, or a blank disc, for a PD demo version of The Hacker (v3.04), and of Diss (v1.10).

ADVERTISERS' INDEX

4 Mation	58	J.R.Lectronics	108-110
Acorn User Show	95	Kendal Computers	108-110
Alsystems	23	Kettering Comp Ctr	108-110
Arcaynia	58	Krisalis	2, 3, 78
Arch Angel	186	Longman Logotron	30
Armtech	69	Micro Aid	111
Atomwide	OBC	Micro Laser Design	108-110
Bits 'n' Bytes	186	Micro Studio	100
Broad Oak	108-110	Microtech	108-110
Cardigan Electronics	108-110	Minerva	56
Circle SW	114	Northern Micromedia	100
CIS	46	Norwich Computers	80
CJ Computing	108-110	Oak Solutions	49
Clares	66	Oregan	55
Colton Sw	4	Pineapple SW	96
Computeck	96	Ptrs in Education	106
Computer Concepts	94, IBC	QD Computers	100
Contex	111	Quantum Software	41
CSS	108-110	Rickett Education	58
CU Electronics	103	Risc Developments	20, 24, 104
Dabhand	8, 9	RW Electronics	23
Dabs Pres	10, 11	Senlac	111
Daco Systems	108-110	Series Stastistical S/W	106
Dalriada Datatech	106	SJ Research	63
Datastore	111	Skyfall	80
Davvin Computers	108-110	Smart DTP	114
Dec-Data	41	Soft Sector	106
Desktop Projects	42	Software Bargains	83, 104
Digital Services	27	SSERC	104
Doggysoft	114	Superior SW	28
DPM Electronics	52	The Computer Depot	108-110
Electronic Solutions	74	The Datastream	108-110
ESP	49	TMJ	114
Explan	72	Turning Tools	106
Fabis Computers	58	Unique Way	108-110
Gnome Computers	72	Vipray	108-110
Gremlin SW	74	Watford	84-93
Ground Control	104	Wild Vision	18
Human Computer Interface	36	Word Processing	52
Honourmead SW	108-110	Yarm Computers	108-110
ICS	12-14		

THE PERFECT ANSWER

The BJ-200 is a brand new black and white printer from Canon, the market leader in inkjet printing. This is a high speed, high resolution printer ideally suited to the Archimedes range of computers.

Computer Concepts supply the BJ-200 with a special version of their TurboDrivers - the fastest printer drivers available for the Archimedes. The printer also includes a built-in 80 page sheet feeder. The price for the printer with TurboDrivers is just £299 + vat (+p&p) - a full £100 less than the recommended retail price.

At 360 dpi the BJ-200 offers significantly higher resolution than other 300 dpi inkjet printers and at faster than 1 page per minute for a full page of graphics (or 3 pages per minute for plain text) it is also faster than other printers in its price range. And being an inkjet it is whisper quiet when printing.

RISC OS Turbo DRIVERS

The BJ-200 with TurboDrivers is the perfect answer to those users seeking the best quality prints in the least possible time, without going to the expense of a laser printer. In fact we guarantee this is the fastest high quality printer available for less than a laser printer, or your money back.

Price
£299 + £10 p&p + VAT (£363.07 inc)

Speed comparison table

Comparison print times using Acorn printer drivers with a Deskjet500 against TurboDrivers with a BJ-200.
All times are in seconds shown on the ARM3 and ARM2 based computers.

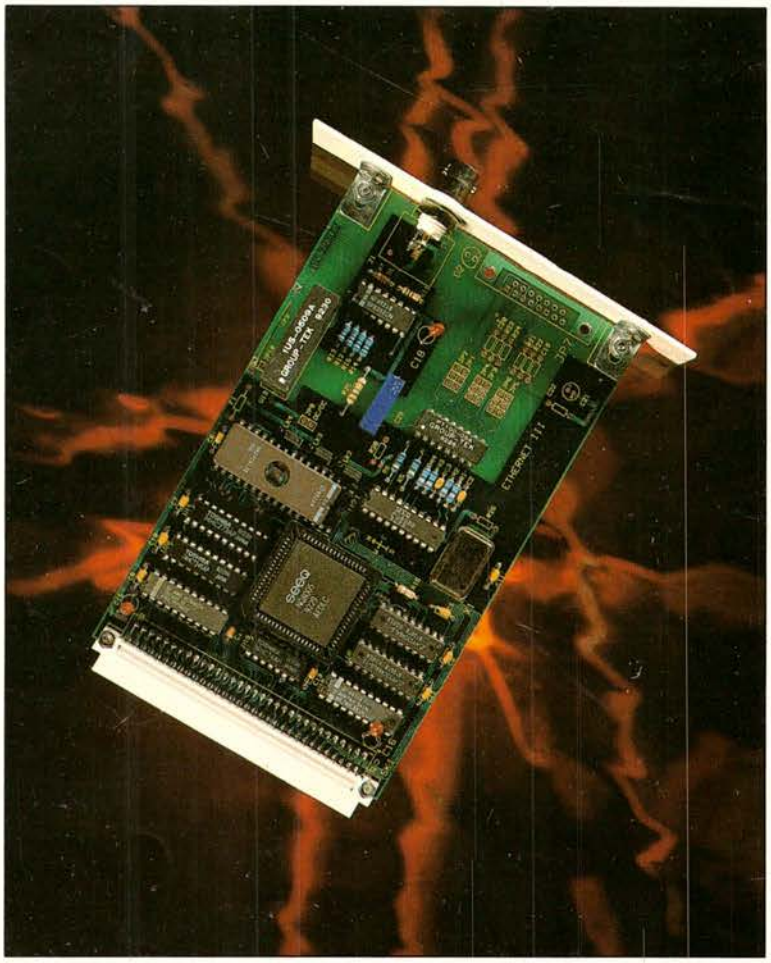
To print a 4 page document consisting of a spread of different fonts, text sizes and graphics:

	DeskJet 500	BJ-200	Speed increase factor
Time to get control back - ARM3	313	59	5.3
Last page completed - ARM3	316	200	1.6
Time to get control back - ARM2	832	155	5.4
Last page completed - ARM2	834	232	3.6

Computer Concepts Ltd

GADDESDEN PLACE HEMEL HEMPSTEAD HERTS HP2 6EX

ORDER HOTLINE
TELEPHONE THIS NO. FOR IMMEDIATE DESPATCH
0442 63933
OR FAX YOUR ORDER ON 0442 231632



If you want your Acorn RISC computers to talk to each other, you should be talking to us

When you've invested in state-of-the-art Acorn 32-bit RISC computers, you will want an equally advanced networking solution

...Ethernet

You'll also need a networking supplier who is committed to supporting Acorn's networking strategy and providing you with a solution guaranteed to work with all the hardware and software you've bought. A supplier who speaks industry standards, is prepared to listen to your requirements and to guide you through the networking maze

...Atomwide

Atomwide Ethernet expansion cards offer a comprehensive range of solutions, engineered to provide the best performance for each Acorn RISC computer from the R260 to the A4 portable, and including the new A3000-series machines.

Hundreds of Atomwide Ethernet cards are already in use in schools, colleges and businesses across Europe. Our team has already met and successfully dealt with many of the problems you're likely to face with advanced networking.

We guarantee compatibility with all the hardware and software standards needed, including the all-important IEEE 802.3, whether to build a new network based on Acorn's AUN or to connect to an existing NFS (TCP/IP) network.

When you buy an Atomwide Ethernet card you're buying speed, standards, compatibility and reliability. With prices

...from less than £149 per card

For further information on our range of Ethernet solutions, or to discuss how we can help you, please contact Atomwide Ltd.

All trademarks acknowledged. Prices exclude VAT. Quantity discounts apply.

ATOMWIDE

23 The Greenway Orpington Kent BR5 2AY

Tel 0689 838852 Fax 0689 896088